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## THE MANDRAGORA OF THE ANCIENTS IN FOLK-LORE AND MEDICINE.

BY CHARLES BREWSTER RANDOLPH.

Presented by M. H. Morgan, May 11, 1904. Received October 8, 1904.

ALTHOUGH references to mandragora\* are by no means uncommon in later as well as in classical literature, and although the commentators on many of the Greek and Latin authors have made more or less copious notes concerning it, yet with the exception of Schmidel's researches in the latter part of the seventeenth century, no special study of the subject appears to have been undertaken until within the last few years. The articles which have recently appeared in various scientific journals have directed their attention mainly to its significance in folk-lore.† The plant figures but slightly in this connection until in comparatively late times. The many wonderful tales about the middle-age *mandragorae* (German *alraune*) had little to do with the real plant, which was practically unknown north of the Alps.

The chief purpose of this paper is to treat the mandragora as it was known to the Greeks and Romans. The rôle which it played in their folk-lore was certainly a subordinate one; they regarded it in general as a medicinal rather than a magic plant. I wish therefore to examine its uses in Greek and Roman medicine, and particularly to state the facts known in regard to its use as an anaesthetic before surgical operations. But inasmuch as the history of its use even in antiquity is involved to a

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\* The Greek *μανδραγόρας*, *mandragoras* in classical Latin, *mandragora* in mediæval Latin and subsequently, is often rendered by the English word *mandrake*. I have used the word *mandragora* as noun and adjective throughout this paper particularly to avoid confusion with the American mandrake (May-apple), which is an entirely different plant.

† The first effort to collect the scattered notes on the mandragora was made by Schmidel in his dissertation of nineteen pages. The most important recent articles on the subject are by Cohn (see next footnote, p. 488), pp. 285-293; von Luschan, pp. 726-728; Ascherson, pp. 729-738, 892; Beyer, pp. 738-746; Wetzstein, p. 890 f.; Veth, pp. 81-88, 199-205.

certain extent in the superstitions which afterwards developed so rich a field for students of folk-lore, it may be of interest to give some account of these superstitions as far as they were known to the Greeks and Romans. Although it is not unlikely that the original home of this very considerable body of superstitions was the Orient, it is, I think, beyond controversy that in the folk-lore of the Greeks and Romans (though generally not yet in connection with this particular plant) we may find the intermediate stage, if not the origin, of many of the superstitions about it which were known to Europe in the middle ages. I have therefore begun with a review of the mandragora superstition as known to the Greeks and Romans. Where it has been an easy step I have passed over the bounds of antiquity into the middle ages, hoping to add something here and there to what has already been written about its later history.\*

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\* In the body of this paper I have given English translations of passages quoted from writers of other languages. The full text of the Greek and Latin passages, with the appropriate references, will be found in the Appendix. In the footnotes — which will be interesting, if to any one, chiefly to students of the classics — I have regularly quoted passages in the original language.

Where I have used simply the name in citing the following writers, the reference is to the work here set down :

Ascherson (Paul) : *Verhandlungen der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte*, 1891. Berlin.

Beyer (R.) : *Ibid.*

Cohn (Ferdinand) : *Jahresbericht der Schlesischen Gesellschaft für Vaterländische Cultur*, 65, 1887. Breslau.

Dioscorides, Diosc. : Cited by volume and page of Sprengel's edition in Kühn's *Medici Graeci*. Lipsiae, 1829.

Galen : Cited by volume and page of Kühn's edition in the *Medici Graeci*. Lipsiae, 1821-1833.

Häser (Heinrich) : *Lehrbuch der Geschichte der Medicin*. Jena, 1875.

Hippocrates, Hipp. : Cited same as Galen ; ed. Lipsiae, 1825-1827.

Koebert (Hermann) : *De Pseudo-Apulei Herbarum Medicaminibus*. Baruthi, 1888.

Von Luschan, v. Luschan (Felix) : Same as Ascherson.

Meyer (E. H. F.) : *Geschichte der Botanik*. Königsberg, 1854.

Neuburger-Pagel, Neub.-Pag. : *Handbuch der Geschichte der Medicin*. Jena, 1902-.

Pliny, Plin. : *Naturalis Historia*.

Schmidel (Johann) : *Dissertatio de Mandragora*. Lipsiae, 1671. This is apparently the work cited by Beyer, p. 744, note 3, under the name of *Thomasius*.

Theophrastus, Theophr. : *Historia Plantarum*.

Veth (P. J.) : *Internationales Archiv für Ethnographie*, 7, 1894. Leyden, etc.

Wetzstein (J. G.) : Same as Ascherson.

Mention of the plant is more common in Greek than in Latin literature. Outside the medical and botanical writers the almost universal nature of these allusions is to its narcotic powers, which were proverbial. Its earliest uses seem to have been purely medicinal, but observation of its quieting effect when properly administered, together with the fact that when given in too large quantities it sometimes produced serious mental disturbance, seems to have led to the belief that it possessed peculiar power over the mind. Perhaps as a result of this belief, a body of superstitions began to grow up around it; some of these may have been connected with it from their beginning, but many of them were evidently transferred to it later from other plants which shared some of its properties.

A prominent feature of the mandragora superstition at all times has been the story of the peculiar ceremonies gone through with before digging the plant. The use of such preliminaries was apparently very common with the ancient root-diggers (*ρίζοτόμοι*) and they employed them in the case of various plants. Naturally a weird story of perils incurred in obtaining a plant strengthened belief in its magic powers and added to its commercial value.

Theophrastus, in his *History of Plants*,\* gives an interesting account of this practice of the root-diggers, from which it appears that some of these preliminaries were practical, such as the anointing of exposed parts of the body, or taking care to stand with the wind at one's back when about to dig a plant from which pungent odors arose; others, such as the digging of certain plants only by night, avoiding the sight of certain birds, and the like, are to be regarded as wholly unnecessary and simply the arbitrary inventions of the root-diggers.

It is in this passage of Theophrastus that we first find a digging ceremony mentioned in connection with the mandragora:

Theophr., 9. 8. 8: Around the mandragora one must make three circles with a sword, and dig looking toward the west. Another person must dance about in a circle and pronounce a great many aphrodisiac formulas.

Pliny gives about the same account:

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In presenting this paper I wish to express my thanks to Professor M. H. Morgan, of Harvard University, who suggested the subject to me, and who has aided me with his advice at many stages of its preparation.

\* 9. 8. 4-8.

Plin., 25.148: Those who are about to dig mandragora avoid a wind blowing in their faces; first they make three circles with a sword, and then dig looking toward the west.\*

Comparing these two passages, we observe that Theophrastus is silent as to the precaution regarding the wind, while Pliny says nothing about dancing around and repeating aphrodisiac formulas; otherwise the accounts agree. Pliny's account probably goes back ultimately to Theophrastus. We know that he used Theophrastus much in the botanical portions of his work; he cites him at the beginning of the twenty-fifth book, in which this passage appears, and in § 69 of the same book he names him as his authority for a digging story about *centauris*, which goes back to Theophrastus's History of Plants, 9. 8. 7, the very chapter in which the story about digging mandragora is given. However, it is pretty well established that Pliny did not use Theophrastus at first hand, but cited his views and his name from intermediate authors.† Information ultimately derived from Theophrastus appears constantly in the Natural History in a somewhat altered form, sometimes briefer, sometimes expanded.‡ The precautions about the wind appear to have been added to the story between the time of Theophrastus and Pliny. The omission by Pliny of any reference to aphrodisiac formulas is easily explained by his declaration (25. 25) that he will say nothing in his work about aphrodisiacs or magic spells except what may be necessary to refute belief in their efficacy.

It is to be observed that no part of the digging ceremony as described by Theophrastus could be regarded as belonging to the "practical" preliminaries; Pliny alone mentions the precaution regarding the wind. The earliest account, then, of the digging of mandragora shows the ceremony to have been not a matter of expediency but of superstition.

It has been remarked above that many features of the later mandragora superstition were transferred to it from other plants. That such stories easily passed from one plant to another may be inferred from a comparison of the two passages just discussed with Theophrastus's account

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\* These words were misunderstood by the mediaeval compiler Bartholomaeus Anglicus, who says in his *De Propr. Rerum*, 17. 104, citing Pliny as his authority: *Tres circulos gladio circumscribunt et post expectant effodere ad occasum.*

† See Sprengel, *De Ratione quae in Hist. Plant. inter Plin. et Theophr. intercedit*, Marp., 1890, and *Id.*, *Rhein. Mus.*, 46 (1891), p. 54.

‡ *Id.*, *De Ratione*, etc., pp. 19-21.

of digging ceremonies employed in connection with other plants. Three circles are made with a sword before digging *xiris*.\* Facing the west while digging is not altogether novel, for hellebore was dug facing *east*,† and Theophrastus himself observes that the custom of repeating aphrodisiac formulas in digging mandragora is similar to the repetition of curses in sowing *cuminum*.‡

Theophrastus and Pliny are the only classic writers who mention a digging ceremony in connection with mandragora, and we evidently have in their account the form of the story as far as it pertained to this plant up to at least 100 A. D. But by the fifth century it had taken on some new features. In the Juliana Anicia manuscript of Dioscorides — written in that century — appears a miniature which represents the Goddess of Invention, Heuresis, offering the mandragora to Dioscorides and holding a dead § dog || by a cord.

Here we see transferred to the mandragora the substance of two very similar digging stories told by Josephus and Aelian about two other plants, which, though bearing different names, were probably identical.¶

Josephus \*\* says that a place called *Baaras*, near the Dead Sea, brings forth a peculiar plant called by the same name. Its color is fiery, and

\* 9. 8. 7. Circles (presumably three) were made about hellebore also: 9. 8. 8.

† 9. 8. 8. Lobeck, *Aglaophot.*, 915<sup>b</sup>, interprets this looking toward the west as an act of reverence to the chthonic gods. What Theophrastus says in the section preceding this about the custom of depositing honey-cakes in the ground as a propitiatory offering (*μελιττοῦτας ἀντεμβάλλειν μισθόν*) upon digging *asclepieum* and *xiris* supports this view.

‡ 9. 8. 8.

§ According to Cohn (*Friedlaender, Sittengesch.*<sup>6</sup>, vol. 1, p. 576), ein *erdrosselter* Hund. But there seems to be no mention anywhere of the *strangulation* of the dog. The story was rather that the dog's death was caused by the terrible cry uttered by the plant when taken from the ground. See below, pp. 493 and 495.

The miniature in this manuscript is reproduced by Lambecius, *Comm. de Bibl. Caes. Vind.*, pars II, tab. ad p. 211. Other interesting figures representing the mandragora and the dog used to pull it are reproduced from manuscripts and Anglo-Saxon printed editions of pseudo-Apuleius, by J. F. Payne, *English Medicine in the Anglo-Saxon Times* (London, 1904), figures 3-6, at the end of the book.

|| According to Th. von Heldreich, *Nutzpfl. Griechenlands*, p. 36 f., the belief exists in Greece to-day that the person who digs a mandragora root must die, and it is therefore only to be pulled with the aid of a dog tied to the upper part of the root. Von Luschan, p. 728, testifies to a present-day belief in Syria regarding the danger attending the digging of the root.

¶ Langkavel, *Botanik der spät. Griech.*, p. 33, identifies *baaras* and *aglaophotis* as *Paonia officinalis*, L.

\*\* Bell. *Iud.*, 7. 6. 3.

toward evening it sends out a ray like lightning. It is not easy to obtain, for it has a habit of receding from the grasp of persons who wish to pull it. Even when obtained it is sure to cause the death of those who touch it unless handled with the greatest care. Divers expedients are resorted to in order to procure it without danger. One of these is to dig around it until only a very small part of the root remains fast in the ground; a dog is tied to this; when he starts to follow the one who tied him, he pulls the root. But the dog dies immediately, a sacrifice for the person who secures the plant.

Aelian's\* story he relates of the plant *cynospastus* ("dog-dug") or *aglaophotis*. This, he says, is not distinguished from other plants during the day, but at night glows like a star. A sign is fastened to the roots at night by which it may be known the next day. When the diggers come at dawn to get it, they do not venture to pull it up themselves, for it was said that the first person who touched it perished through ignorance of its nature. They therefore take a dog which has been kept without food for several days and tie him with a strong cord to the lower part of the plant. They then throw him pieces of meat. Attracted by the smell the dog springs forward, and thus pulls the plant. He dies at sunrise, and they bury him on the spot with secret rites, considering that he has incurred death for their sake.

It is evident that we have here two versions of the same story, differing somewhat in their details, but in general agreeing. Both plants glow in the night, both are dug at peril of one's life unless certain precautions are taken, in both cases the dog dies after pulling the root, and his death is regarded as a measure of atonement for the act. Furthermore, the uses of the plants are similar: *baaras* is said to be used to "drive out demons," while *aglaophotis* is good for epilepsy, — doubtless the same malady in each case.†

Josephus says that his plant grows near the Dead Sea; Aelian says nothing about the habitat of *aglaophotis*, nor is it possible to infer anything about it from the subject-matter of this book (XIV), for in it he treats of various matters pertaining to many parts of the world, — Libya, India, Italy, Istria. But Pliny gives us a valuable hint as to the source of the story when he says that *aglaophotis* grows in eastern

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\* Nat. Anim., 14. 27.

† Epilepsy, among other diseases, was regarded by the Jews in the time of Josephus as a manifestation of demoniac influence. See Scribner's Dictionary of the Bible, vol. 1, p. 593.

Arabia, and that *the magi use it to conjure up the gods*.\* It appears, then, that Aelian is telling a story about a magic plant, and that the origin of this story is to be traced to the Orient, just as that of Josephus's is.

The significance of the picture in the Dioscorides manuscript is plain. We have evidence that an Oriental myth formerly associated with another plant had by the fifth century been transferred to the mandragora.

Even in the middle ages the story was amplified somewhat, as appears from the following extract from Schmidel's dissertation † :

The diggers must go forth on the day of Venus ‡ before sunrise, having filled their ears with cotton and sealed them with pitch or wax. They must make three circles with a tripod and affix the sign of the cross to the plant; then dig all about it, until only a single thread of the root remains fast in the earth. After the root has been thus treated, they must tie it with a rope to the tail of a dog, then quickly withdraw, throwing the dog a bit of bread. As he strains to reach the bread he will pull the root, and immediately on hearing its cry will drop dead.

Here we have the story of the dog pulling the root embellished with a few clumsy details. These are probably to be looked upon as the invention of the swindlers who went about Europe in the middle ages selling the images called *mandragorae* or *alraune*. § Their object in circulating the story was doubtless the same as that of the ancient root-diggers, to enhance the value of their wares.

\* Plin., 24, 160.

† See footnotes, pp. 487 and 488. This extract is from § 53.

‡ Friday.

§ These images were generally not made from the genuine mandragora, but from bryony and other easily procurable roots. See Beyer, p. 738 ff., and the passage there quoted from Matthiolus, Comm. in Diosc., lib. 4, cap. 76 [61].

Ascherson, p. 736, says that it can hardly be doubted that artificially prepared mandragora images were known in classical times, and he cites the epithets *ἀνθρωπομορφος* and *semihomo* (see footnotes below, p. 495) as indicating to him that "art was already helping out nature at that time." But the resemblance of the natural root to the human body must have been striking enough to call forth such epithets, and there could have been no object in so preparing the root unless the images were to be used as fetiches. The use of mandragora root for such a purpose in classical times, however, is entirely foreign to literature, and there is no evidence that this feature of the later superstition had yet become associated with the plant. When the pseudo-Orphic *Lithica* were written (probably about the 4th century after Christ), the talismanic powers later reported of the mandragora were ascribed to *ophites* (see p. 497 below).



The "day of Venus" was doubtless chosen as the day for digging mandragora because it bore the name of the Goddess of Love,\* since one of the virtues claimed for the mandragora in the middle ages was that it won the owner favor in love.† Digging before sunrise was a common practice in ancient times in the case of several other plants.‡ Instructions to stop the ears followed naturally upon the incorporation into the story of the idea that the plant shrieked when taken from the ground.§ Affixing a sign to the roots we have already seen in Aelian; here the sign is the sign of the cross, to suit the age in which this version of the story arose. The rest of the story agrees with one or the other of the versions which we have already examined, and calls for no further comment. ||

Closely connected with this digging story in later times was the belief that the mandragora grew in a form resembling the human body, and even presenting the peculiarities of sex. This does not appear to be definitely stated anywhere before mediaeval times. But the germs of the superstition are found in the words of several ancient writers.

Both Dioscorides and Pliny refer to a "male" and a "female" species of mandragora.¶ These terms, which the ancients applied to many plants, have nothing to do with sex, but signify more robust species (i. e., those having larger leaves, roots, etc., and attaining a greater height) and their opposites.

\* Friday was never sacred to Venus in the ancient religion. It received the name "day of Venus" when the names of the seven planets were given to the days of the week, which Dio Cassius (37. 18) says was not very long before his time (2d-3d century of our era). See Hare, *Philol. Mus.*, 1 (1832), p. 2 ff.

† Levinus Lemnius, *Herb. Bibl. Explic.*, cap. 2.

‡ See Theophr., 9. 8. 5 (*clunenum*); Colum., *De Re Rust.*, 6. 5. 3 (*consiligo*); Plin., 25. 145 (*anagallis*); Diosc., 1. 349 (*centaureum*).

§ See below, p. 495.

|| Why they should have made circles about the plant with a *tripod* before digging is unintelligible to me, and I can only suggest that Schmidel (who is the only one to cite this custom, so far as I know), or some one before him who read of this ceremony, misinterpreted the phrase relating to this part of it. Ponce de Leon in his *Commentary on Physiologus*, cap. 4, thus translates the words of Theophrastus, τὸν δ' ἕτερον κύκλῳ περιορχεῖσθαι (9. 8. 8): iubent et alium saltantem *tripudio* circumagi. Probably the words *tripudium* and *tripus* were confused, and terno *tripudii* circumductu should be the reading in Schmidel instead of terno *tripodis* circumductu.

¶ See below, p. 505.

(Pseudo-) Pythagoras,\* according to the interpolator in Dioscorides, called the mandragora "anthropomorphic," † and Columella speaks of it as "half human." ‡ These words without doubt refer to a fancied resemblance of the root to the lower part of the human body. §

Furthermore, Pliny writes about the plant *erynge* that its root presents the characteristics of either sex. ||

We know, then, that the mandragora comprised two species, called "male" and "female"; that the lower part of the root was thought to resemble the human form; and that it was claimed for another plant that it possessed the marks of sex. What was more natural, in the case of a plant about which various strange beliefs were already entertained, than that these three features should be combined?

The climax of these superstitions seems to have been reached toward the end of the middle ages. The following passage from Schmidel's dissertation will serve to illustrate the absurd beliefs once entertained by the credulous in regard to this plant, and evidently believed to a considerable extent even in his day. ¶

§ 53: At the foot of the gallows on which a man has been unjustly hanged for theft, it is said that there springs from the urine voided just before death, a plant with broad leaves, a yellow flower, and a root which exactly represents the human form, even to the hair and sexual organs. Some say that this plant was alive under the ground. . . . The Germans call it the *alraun*. To dig it is said to be attended with great danger, for it gives forth such groans when drawn from the earth, that the digger, if he hears them, dies on the spot.

Even in this form the greater part of the story may be traced back to antiquity. The part of it referring to the hanged thief is plainly an

\* Author of a lost work on the properties of plants, who wrote in the age of the Ptolemies, according to Ascherson, p. 736.

† *ἀνθρωπόμορφον*, Diosc., 1. 570.

‡ *semihominis* . . . *Mandragorae*, De Re Rust., 10. 19 f.

§ This resemblance is readily seen in the picture of the mandragora in Bodaeus's Theophrastus (Amst., 1644), p. 585. See also the illustration in the Standard Dictionary under the word *mandragora*.

|| Plin., 22. 20.

¶ This, with the passage quoted above from the same section, is a typical version of the middle-age story, and presents all the essentials; it appears elsewhere with slight differences in the details. For example, according to one account the criminal must be a hereditary thief; according to another, a thief who has never had sexual intercourse; another version says that the dog must be snow-white, etc.

adaptation of an ancient fable about a so-called *herb of Prometheus* (φάρμακον Προμηθεῖον), which is thus described in the Argonautica of Apollonius Rhodius:

3. 851 ff: This sprang first when in the glades of Caucasus the flesh-devouring eagle sent dripping to the earth the gory ichor of wretched Prometheus. And a cubit's height above appeared a flower, in color like to the Corycian crocus, supported on twin stalks, and the root in the earth was like to new-cut flesh. . . . The dark earth shook beneath as the Titanian root was cut, and the son of Iapetus groaned himself, for his heart was mad with anguish.\*

This is plainly the source of our story. For Prometheus was condemned to his punishment for *theft* (and wrongly condemned, we should say); the flower sprang from his gore as it dripped to the ground.† The idea that the plant was alive under the ground appears to be a reminiscence of the line in Apollonius in which it is said that the root in the earth resembled new-cut flesh; the groans of the plant when taken from the earth go back to the latter part of the above passage. In the story of the Promethean plant it is said to spring from the gore which drips from the Titan's body. Since gore does not drip from the bodies of hanged thieves, a change had to be made here in adapting the story to the mandragora, and so the plant is said to spring from the thief's *urine*.‡ And lastly, the sudden death of the digger plainly goes back to Josephus and Aelian, who say, as we have seen, that the one who pulls *baaras* or *aglaophotis* must surely die unless he takes the precautions indicated.

The images made from the roots which it was alleged were obtained in this way were kept as fetiches or talismans, and were thought to bring the owner good fortune in various ways: they were considered useful in divining secrets,§ in increasing one's material prosperity,§ in gaining the lover the object of his affection,|| in making sterile women fertile,¶ and

\* This passage is imitated by Valerius Flaccus, Argon., 7. 355-370.

† With this story compare what Galen says of the crocus, 13. 269: *μειράκιον καλούμενον Κρόκος, ἅμα τῷ Ἑρμῇ δισκεύων, εἴθ' ἐστὸς ἀμελέστερον, ἐμπεσόντος αὐτῷ δίσκου τῇ κεφαλῇ, συνέβη μὲν ἀποθανεῖν αὐτίκα, τοῦ δ' αἵματος εἰς τὴν γῆν ἀναχθέντος, ἐξ αὐτοῦ φῦναι τὸν κρόκον.* On other similar stories see Peter's note on Ovid, Fasti, 5. 226.

‡ This is probably to be regarded as a reminiscence of Josephus' story about *baaras*, which retreated from those who wished to pull it, unless a woman's urine was sprinkled upon it. Bell. Iud., 7. 6. 3.

§ Beyer, p. 742.

|| Levinus Lemnius, Herb. Bibl. Explic., cap. 2.

¶ Matthioli, Comm. in Diosc., lib. 4, cap. 76 [61].

for other purposes.\* The images were bathed and dressed and carefully tended.†

This custom, too, is not without its counterpart in antiquity. In the pseudo-Orphic *Lithica*, written probably about the 4th century after Christ, we find a *stone* treated in essentially the same way, and considered valuable for very similar purposes. Here we read of the stone *ophites* :

Lith., 363 ff. : Washing the sentient stone in an ever-flowing spring, he cherished it in soft garments like an infant. . . . He tended it in his arms, lifting up the divine stone, like a mother holding in her arms her infant son. And do you too, when you wish to hear a heaven-sent voice, do this, that your mind may behold a marvel; for when you exert yourself, shaking it hard in your hands, straightway you shall arouse the voice of a new-born child, crying for milk on its nurse's bosom. But rouse it ever, being of a stout heart, . . . and dare to ask for a prophecy; for it will declare everything unerringly.

The virtues of the stone thus cared for are several :‡ (1) it has the gift of divination ; (2) it prevents attacks by serpents ; (3) it cures their bites ; (4) it causes sterile women to bear children ; (5) it restores sight ; (6) it cures headache ; (7) it restores hearing ; (8) it remedies impotency in wedlock. Have we not here in late Greek literature — evidently an echo of the folk-lore of this or an earlier time — the essential part of the alraun myth of the middle ages ? §

We have now observed each of the important features of the later mandragora superstition (except the digging story in its simplest form,

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\* Joan of Arc was accused at her trial of having a mandragora. The words of the charge are given by Quicherat, *Procès de Condamnation et de Réhabilitation de Jeanne d'Arc*, vol. 1, p. 213 f.

† Figures made from mandragora are kept for the same purposes in eastern countries to-day, and probably have been for centuries. See v. Luschan, p. 728.

‡ (1) 378 ff. ; (2) 412 ff., 458 ; (3) 430-450, 342 ff., 452 ; (4) 453 ; (5) 459 ; (6) 459 f. ; (7) 460 ff. ; (8) 463 ff. These references are to Hermann's edition (Lipsiae, 1805).

§ Among a number of less important passages bearing on mandragora which I have collected from the works of mediaeval writers, some of the glosses on the word may be mentioned here. The authors of these knew it chiefly as a wonder-plant, and were evidently acquainted with the traditions about its power over the mind. They probably (as no doubt the majority of the middle-age writers) had no personal acquaintance with the plant; so it is several times confused with *hyoscyamus*, the Latin name for which was *apollinaris* : see CGL 3. 543. 41 ; 3. 536. 10 ; 3. 550. 5 ; 3. 550. 1 (*apollea*). 3. 569. 60 gives *malacanina*, with reference to the later digging story. In 3. 558. 65 and 3. 622. 57 we read *circelon*, evidently a corruption of *Κίρκαλα*. We twice find the term *orcibeta* (herb of Orcus ?) applied to it : 3. 536. 10 and 3. 550. 5. 3. 592. 42 and 3. 626. 17 call it *herba periculosa*, and 3. 614. 4 reads *mandragora idest periculosa*. The fullest gloss in CGL is 3. 585. 1 : *mandragora herba*

as related by Theophrastus — the nucleus about which the rest grew) in an earlier setting, apart from the mandragora, in Greek or Roman folk-lore: (1) details of the digging story, such as the pulling of the root by a dog, related by Josephus and Aelian in connection with *baaras* and *aglaophotis*; (2) the story about the mysterious origin of the plant from the urine of a thief, and the groans emitted by it when taken from the ground, modelled upon the older story of Prometheus; (3) the story of the reproduction of sexual distinctions, reported by Pliny of *erynge*; (4) the custom of keeping the root as a fetich, and caring for it as a human being, which finds its pattern in the *Lithica*. This furnishes us a basis for the following theory: The chief elements of the middle-age mandragora superstition originated either wholly in the Orient, the peculiar home of the magic lore of antiquity, or part of them there,\* part of them among the Greeks and Romans;† few of them were at first connected with the mandragora. The elements of Eastern origin passed into the folk-lore of the Greeks and Romans, where they began to unite, and where a story-complex began to form about the mandragora.‡ Passing on to the people of northern Europe,§ this story-complex was augmented in the middle ages by the addition to it of

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*quae odorem habet grandem, qui hominem extra mentem facit, et est eius radix in similitudine corporis humani.* In 3.554.48 and 3.619.3, *bulloquilon mandragora*, we perhaps have an attempt to reproduce *βουβόχυλον*, a name cited by the interpolator in Diosc., lib. 4, cap. 76.

In a medico-botanical glossary published in Mowat's *Anecdota Oxoniensia*, vol. 1, p. 109, are two glosses on mandragora. They are plainly taken wholly from Dioscorides, with the exception of the last sentence in the second: *ista, ut dicitur, bibita homines amantes facit*. This glossary is taken from a 14th-century manuscript in the library of Pembroke College, Oxford.

\* For example, using a dog to pull the root, an element evidently of Eastern origin, as shown above, p. 492 f.

† The circles made about the plant before digging, which I cannot trace back of Theophrastus. Whether or not the *μυζοτόμοι* were indebted to the East for their digging stories I have been unable to ascertain. It is, of course, possible that the custom of making circles about the root, as well as the story about the herb of Prometheus, and the habit of treating *ophites* as a fetich, go back ultimately to the East.

‡ By the 5th century (the date of the Juliana Anicia manuscript of Dioscorides) this included the pulling of the root by a dog, the report that the root represented the human form, with sex-distinctions, as shown by the miniatures in the manuscript referred to, and doubtless also the encircling of the plant with a sword, and the pronouncing of aphrodisiac formulas, which of course the miniatures cannot indicate.

§ As to the path taken by the mandragora superstitions in their passage north,

still other features,\* which appear to have been derived independently from the same source. Finally, from northern Europe this group of mandragora stories spread back to the Orient, and the custom of digging and using mandragora there to-day in the mediaeval fashion is the result of this backward movement.†

In the preceding pages I have attempted to give a general idea of the nature of the superstitions which have been connected with the mandra-

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I am not able from my study of the subject to reach any conclusion more definite than that they came to northern Europe from the Greeks and Romans rather than directly from the East. As to whether they passed north from the Greeks or the Romans, I am not ready to venture an opinion. Ascherson's article in the *Sitzungsber. d. Gesell. f. naturf. Freunde*, Berlin, 1890, pp. 59-82, in which he contends that certain beliefs about the mandragora formerly held in Greece passed to Germany (in connection with another plant, *Scopolia carniolica*, Jacq.) by way of Dacia, Galicia, and southern Russia, shows how the particular stories which we are dealing with *might* have gone north from the Greeks. Doubtless there were also other channels. Further investigation may make more definite conclusions possible.

\* The Prometheus element and the fetich idea. By "the same source" I mean by way of the Greeks and Romans.

† We know that accounts of the medicinal uses of the plant went from west to east; witness Serapion's chapter on mandragora, based almost wholly on Greek sources (see p. 517 below). What more natural than that the superstitions now at length connected with it should have passed along with these accounts of its uses in medicine? Medicine and magic went hand in hand from the earliest times.

Wetzstein (in a letter to Ascherson, p. 890 f.) and Veth (p. 200 f.) attempt to show that the mandragora story (just how much of it I cannot make out from their articles) originated in *Persia*, and spread from there to neighboring countries. Arguments for this view are: (1) that *μανδραγόρας* may be derived from *merdom gia*, "man-like plant," a Persian name for the mandragora; (2) that another Persian name for it is *segken*, "dog-dug"; and (3) that the plant is dug with the same ceremonies and used for the same purposes in Persia to-day as it was in northern Europe in the middle ages. But the derivation of *μανδραγόρας* from *merdom gia* (which, if proven, would show that superstitions about the plant were current in Persia in very early times, for which there is now no evidence) is by no means certain; and as regards the name *segken* and the existence of ceremonies and beliefs in Persia to-day similar to those of mediaeval Europe, there is no more reason to believe that they passed from Persia to the West than that the opposite movement took place.

In attempting to show the Eastern origin of portions of the mandragora superstition, previous writers have often, it seems to me, asserted too positively that this plant was believed by Oriental peoples from very ancient times to be an aphrodisiac and a promoter of fecundity, citing the passages in which the word occurs in the Old Testament as proof of this. As I have said below (p. 504), *there is no positive proof*

gora, and to show to what extent the later European stories about it were based upon classic antiquity. It has been shown that, while the elements of these superstitions were known to the Greeks and Romans, they were not generally connected with this plant. I wish now to show what they thought about the mandragora itself.

Before discussing its legitimate uses in medicine, certain beliefs should be noticed which are not entirely free from superstition, and yet are apparently based on observation of the actual effects of the plant. These are (1) that it induces madness; (2) that it influences sexual relations, being effective (*a*) in philtres, (*b*) as an aphrodisiac, (*c*) to produce fecundity.

In the treatise *De Hominum Locis* (formerly ascribed to Hippocrates, and in any case to be referred to the 3d or 4th century B. C.\*) direction is given to administer "less of the drug than causes madness."†

Suidas gives the verb *μανδραγορίζω* without defining it; judging by the analogy of words like *ἐλλεβορίζω* it seems to mean "to dose with mandragora."

that the *dūdā'im* were actually *μῆλα μανδραγορῶν*. The supposed discovery of representations of and mention of the mandragora on Oriental and Egyptian monuments, such as Perrot and Guillaume (*Les Monuments de la Ptérie*, Rev. Arch., 23 (1872), pp. 284-289) and Brugsch (*Die Alraune als altägyptische Zauberpflanze*, Zeitschr. für Aegypt. Spr., 29 (1891), pp. 31-33) describe, where the connection might indicate that it had a reputation as a wonder-plant among these peoples, is altogether too much a matter of conjecture to be admitted as evidence.

Some of the recent writers appear to hold the belief (though I do not find it definitely stated by them) that this story-complex developed in the East, and passed from there substantially in its later form, with all its features already connected with the mandragora. In that case, the superstition, it seems to me, would have passed *as a whole* to the Greeks and Romans, in connection with the mandragora, — it would not have been broken up into parts, the circles with a sword staying with the mandragora, the sex-feature going to *erynge*, digging with the aid of a dog to *baaras* and *aglaophotis*, the use as a fetich to *ophites*, and so on. Veth evidently realized as inconsistent with this view the fact that Josephus tells his digging story about *baaras*, and not about mandragora; but Veth maintained that *baaras* and mandragora were the same plant, but that Josephus did not know the Greek name. Veth would gladly believe that Aelian, too, was only telling of mandragora under another name when he wrote of *aglaophotis*, but he confesses himself unable to identify them. He thinks that the uncritical Aelian made a mistake and wrote down the name of the plant wrong! But all difficulty vanishes when we believe that in the time of Josephus and Aelian this feature of the later story had not got as far as the mandragora.

\* See Kühn's Hippocrates, vol. I, p. cliii; Neub.-Pag., p. 217.

† Hipp., 2. 139: *ἐλασσον ἢ ὡς μαίνεσθαι*.

Athenaeus gives five fragments of a play of Alexis\* called ἡ Μανδραγορίζουμένη. There are thirty-two verses in all, but unfortunately none of them explains the name of the comedy. The only possible interpretation seems to be to take this name as the passive participle of μανδραγορίζω, understood as above, i. e., "The Mandragora-drugged Lady." Whether the drug was represented as a love-charm or as causing madness it is impossible to determine.

There is a possible reference to madness induced by mandragora in Columella: †

Quamvis semihominis vesano gramine foeta  
Mandragorae pariat flores.

Here some have understood that *gramen* means *plant*,‡ and that the "mad plant" (*vesanum gramen*) is the mandragora, translating "although, rich in the mad plant, it brings forth the flowers of the half-human mandragora." § Others explain *vesanum gramen* as *luxuriously growing grass*, translating "although, rich in luxuriously growing grass, it brings forth the flowers of the half-human mandragora." || It seems impossible to determine which view is the correct one.

In Aretaeus we read :

De Caus. et Sign. Diut. Morb., 1. 6. init. : Certain edibles, such as mandragora and hyoscyamus, induce madness, but these affections have never been called *mania*.

That mandragora was used in philtres, and that it was believed to have aphrodisiac properties, is not directly affirmed by any ancient writer, but it appears from a number of passages that it had this reputation to a greater or less extent.

Theophrastus and Dioscorides report its use in philtres on hearsay :

Theophr., 9. 9. 1 : They say (φασί) that the root is useful for philtres.

Diosc., 1.570 : Some call it *circaea*,¶ because the root appears (δοκεῖ) to be useful for making philtres.

\* Kock, Com. Att., vol. 2, p. 347 ff. (Athen., 3. 123 f; 8. 340 c; 8. 365 d; 12. 552 e f; 14. 621 d e).

† De Re Rust., 10. 19 f. I have given the Latin text because of the uncertainty as to the correct translation.

‡ On *gramen* in this sense compare Verg., Georg., 4. 63, Aen., 12. 415; Ovid, Met., 7. 137.

§ See Lemaire, Poetae Lat. Min. (Paris, 1826), vol. 7, p. 30.

|| See Barth, in Gesner's Script. Rei Rust. (Lips., 1735), vol. 1, p. 692.

¶ The name refers to Circe. Dierbach, Flor. Myth. (1833), p. 204, thinks that



A reference to the belief in its aphrodisiac properties is doubtless to be recognized in the remark of Theophrastus quoted above, that when mandragora was dug it was customary to repeat aphrodisiac formulas; and in the mention by Hesychius of *Μανδραγορίτις* as an epithet of Aphrodite.\*

A passage in a letter of Julian the Apostate to the priestess Callixena also appears to refer to this belief:

Epist. 23: Who can prefer in a woman conjugal love to piety, without being thought to have taken large draughts of mandragora? †

A striking indication of the belief in the plant's aphrodisiac powers is taken from the so-called Physiologus, a work of uncertain date, but probably compiled during the early centuries of the Christian era.‡ In the fourth chapter, which treats of the elephant, we read:

The female seeks out the so-called mandragora plant, and partakes of it; straightway she is inflamed, and, going to the male, gives him the plant; he partakes of it, and straightway is inflamed, and cohabits with the female.§

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mandragora was the magic herb with which Circe bewitched the companions of Odysseus. Odys., 10. 235 f :

ἀνέμισγε δὲ σίτω  
φάρμακα λύγρ', ἵνα πάγχυ λαθοῖατο πατριδὸς αἴης.

It may be, indeed, that we have in the name *circæa* a reminiscence of some lost story in which the plant was brought into connection with this famous incident; and the note of Suidas on mandragora, *λήθης ποιητικός*, may possibly be another.

\* Hesych., s. v. *Μανδραγορίτις*.

† This passage *might* be interpreted as referring to the mandragora's power to induce madness ("Who but a madman would place conjugal love before piety?"), or lethargy ("Who but a dullard," etc.). But the context is against this; Julian is contrasting Penelope's persevering fidelity to Odysseus with Callixena's long and faithful service in religion.

According to Gesner's note on Colum., 10. 19, Aetius, 13.45, says that mandragora induces madness. I have not been able to gain access to an edition of Aetius properly arranged for reference.

‡ This book, a favorite in the middle ages, is the source of many well-known wonder stories from the realm of nature, such as the rising of the phoenix from its ashes, the pelican nourishing its brood from its own blood, and others of the sort. On its date and authorship see Christ, Gr. Litt.<sup>3</sup>, p. 911; Krumbacher, Byz. Litt., p. 874 f.

§ Here follows, as regularly throughout the work, a symbolical interpretation, by which the story is brought into connection with the Bible: the male and female elephant represent Adam and Eve, and the mandragora represents the forbidden

Evidence of belief in the mandragora's aphrodisiac properties, as well as in its power to produce fecundity are found in two passages in the Septuagint version of the Scriptures, where the Hebrew *dūdā'im*, meaning literally *love-apples*, is translated by *μανδραγόραι* or *μήλα μανδραγορῶν*.

In the seventh of the Canticles, 10-13, we read :

I am my beloved's,  
And his desire is toward me.

Come, my beloved, let us go forth into the field;  
Let us lodge in the villages.  
Let us go up early to the vineyards;  
Let us see whether the vine hath budded and its blossom be open,  
And the pomegranates be in flower:  
There will I give thee my love.  
The mandrakes give forth fragrance,  
And at our doors are all manner of precious fruits, new and old,  
Which I have laid up for thee, O my beloved.

Here both the meaning of the Hebrew *dūdā'im*, and the context indicate that an aphrodisiac is referred to.

The other passage, Genesis 30. 14-16, is as follows :

And Reuben went in the days of wheat harvest, and found mandrakes in the field, and brought them unto his mother Leah. Then Rachel said to Leah, Give me, I pray thee, of thy son's mandrakes. And she said to her, is it a small matter that thou hast taken away my husband? and wouldst thou take away my son's mandrakes also? And Rachel said, Therefore he shall lie with thee to-night for thy son's mandrakes. And Jacob came from the field in the evening, and Leah went out to meet him, and said, Thou must come in unto me; for I have surely hired thee with my son's mandrakes.

Why Rachel wanted the *dūdā'im*, was a source of much discussion to the fathers who wrote commentaries on Genesis. The theory commonly accepted by these writers, that the *dūdā'im* were supposed to promote conception,\* is evidently the correct one. In the first place, Rachel's bar-

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fruit. Compare the interpretation of Michael Glycas, Script. Hist. Byz., vol. 26, p. 100 f.

Compare with this story about the elephant the statement of Dioscorides (1. 572): *μαλάσσειν δὲ καὶ ἐλέφαντα λέγεται ἡ ρίζα συνεψομένη αὐτῷ ἐπὶ ὥρας ζ', καὶ εὐπλάστον αὐτὸν εἰς ὃ ἂν τις βουληθῇ σχῆμα παρασκευάζειν*. Can there be any connection?

\* Accepting this theory, and identifying *dūdā'im* and mandragora, the fathers

renness was a source of keenest grief to her,\* which furnishes a motive for her request. Furthermore, the whole chapter in which the *dūdā'im* are introduced, up to the twenty-fifth verse, bears upon the sterility of Rachel and the fecundity of Leah, and nothing else. This interpretation is further strengthened by Leah's reluctance to give up the *dūdā'im*; for her power over Jacob depended upon the fact that her rival bore him no children.

There seems, then, sufficient reason for supposing that Rachel wanted the *dūdā'im* for the purpose of relieving her sterility.† Whether or not *dūdā'im* and mandragora are identical is another question,—one which has never been certainly answered, and which probably never will be, inasmuch as there were doubtless other plants which were thought to favor conception, and, as far as the passage in Genesis is concerned, the *dūdā'im* may have been any one of these as well as mandragora. But in any case it seems certain that a word meaning *love-apples* would not have been so rendered by the Seventy if mandragora had not been well known as an aphrodisiac at the time the translation was made. ‡

The fullest and best description of the mandragora is found in Dioscorides. § Pliny gives a somewhat shorter one. || Theophrastus ¶ does not attempt a connected description of the plant known to him by this name, but gives a few of its characteristics, thereby showing certainly that it was neither the mandragora of Dioscorides and Pliny nor the plant known as mandragora in Greece and Italy in later times.

We learn from Dioscorides that the mandragora had a variety of names; he himself mentions four, and the interpolator gives several more. A number of these were also applied to other plants, with

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went farther and attempted to show on physiological grounds how the mandragora may have favored conception. See, for example, the opinions cited by Barth. Angl., *De Propr. Rerum*, lib. 17, cap. 104.

\* Gen. 30. 1.

† Frederick Starr, *Amer. Antiq.*, 23 (1901), p. 267, says that the Jews still believe in the power of mandragora to induce fertility, and that American Jews to-day import specimens of the root from the Orient for this purpose.

‡ Mention should be made in passing of a reference of somewhat uncertain significance in the pseudo-Orphic *Argonautica* (917-922), where mandragora and fifteen other plants are represented as surrounding the tree on which the golden fleece is suspended. Most of these others as well as the mandragora were associated with superstitions of one sort or another in antiquity, and they seem to figure here simply as magic plants likely to harm the intruder.

§ Diosc., 1. 870 ff.

|| Plin., 25. 147-150.

¶ Theophr., 6. 2. 9.

the result that they are often confused with it in the works of ancient writers.\*

Two species were well-known to the ancients, and both are found to-day in southern Europe and in Asia. Dioscorides mentions a third species, with which he apparently had no personal acquaintance. †

The "female" mandragora (*mandragora autumnalis*, Spreng.) is of a dark shade, with small, narrow leaves; ‡ these grow spread out along the ground, and have a strong, unpleasant odor. Among the leaves appears the fruit, which is of a yellow color, of the size of service berries or filbert nuts, § and has a pleasant smell. The fruit contains a seed much like that of a pear. The roots are two or three in number, and grow intertwined with one another; they are black ¶ or reddish ¶ on the outside, but white within, and the interior is fleshy and tender; the bark is thick; the average length of the root is about a cubit. Pliny says that this species has a hairy stem; Dioscorides says that it has none.

The "male" mandragora (*mandragora vernalis*, Bert.) is of a light color, which the writers generally call white. The leaves are large, white, smooth, and broader than those of the first species; they resemble the leaves of the beet ¶ or garden sorrel. ¶ The fruit of this species is twice as large as that of the other; its color is yellow, and its odor pleasant, though strong. The root resembles that of the first species, but is larger and whiter. Dioscorides states that it has no stem, and Pliny is silent on this point.\*\*

Pliny's description differs from that of Dioscorides in five points:

\* See footnote above, p. 497.

† Diosc., l. 573: *ιστοροῦσι δὲ καὶ ἑτέραν*. As to the existence of other more or less clearly defined varieties in Europe and Asia to-day, see Ascherson, p. 729, note 4.

‡ Pliny says "narrower than lettuce"; this is a favorite standard of Pliny when speaking of the relative size of leaves. The interpolator in Dioscorides (l. 570) says that mandragora was also called *θηριδακίς*; this too seems to refer to some resemblance to the lettuce (*θηρίδαξ*).

§ Service berries and filbert nuts are of about the same size. Bodaeus, Comm. ad Theophr., p. 584.

¶ Dioscorides.

¶ Pliny.

\*\* Dioscorides adds that the "male" is also called *νόριον* (*νόριον*, cod. N), but this seems to be a corruption of *μόριον*, the name of his "third species." Pliny mentions the name *morion* and also *arsen* (*ἄρσην*) and *hippophlomos* in connection with the "male."

The description given above is that of the ancient writers; I have made no attempt to treat the plant from the standpoint of a modern botanist.

A. Female species. (1) Dioscorides says that the leaves are narrow; Pliny says that they are narrower than the leaves of the lettuce; (2) Dioscorides says that the fruit resembles service berries; Pliny says that it resembles filbert nuts; (3) Dioscorides says that the root is black outside; Pliny says that it is reddish; (4) Dioscorides says that it has no stem; Pliny says that it has a stem. B. Male species. (5) Dioscorides says that the leaves resemble those of the beet; Pliny says that they resemble those of the garden sorrel.

In all this there is no real conflict, except in the matter of the stem. Pliny probably used lettuce, filbert nuts, and sorrel as standards of comparison, while Dioscorides used service berries and the beet, because each thought the ones which he used would be readily familiar to his readers; "black" and "reddish," applied to the root, are only relative terms, such as "white" and "black," applied to the two species. But there is no compromise possible in the matter of the stems. Pliny must be wrong here, for the mandragora as identified by later writers has no stem. In spite of this discrepancy it is evident that Dioscorides and Pliny were writing of the same plant.

The mandragora of Theophrastus is very briefly characterized: (1) It has a stem; (2) its fruit is (a) black, (b) similar to a grape,\* and (c) has a vinous juice.

The third species of Dioscorides, which he says is also called *μόριον*, grows in thickly shaded places, and about caves. The leaves resemble those of the "male," but are smaller, being about a span broad, and whitish in color; they grow in a cluster about the root, which is tender and white, somewhat more than a span in length, and about as thick as the thumb.

There has been a great deal of discussion about the mandragora of Theophrastus and the third species of Dioscorides. Some have attempted to identify them. This seems to me impossible from the start, for the two authors happen to mention an entirely different sort of facts about each; while Dioscorides tells about *habitat*, *leaves*, and *root*, Theophrastus speaks only of *stem* and *fruit*. There is, then, no proper basis of comparison, and it is useless to conjecture further as to their identity. On the other hand, it is a pretty generally accepted view that the mandragora of Theophrastus is to be identified with belladonna.†

Various parts of the plant were employed medicinally. The fresh

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\* *παράδους*: apparently the best interpretation of this word.

† See Ascherson, p. 734 f., note 2.

*leaves* mixed with barley meal were applied as a poultice;\* they were sometimes preserved in brine for future use.† The *fruit* had various uses, as did the juice extracted from it, and the *seeds*. Dioscorides distinguishes between the simple juice (ὁπός) obtained by scratching or pounding the bark and that obtained by boiling (χύλισμα, χυλός); Pliny does not make this distinction, so that we do not always know which kind his *sucus* refers to. Juice was obtained both from the *root* and from the *fruit*,‡ that from the root being more powerful.§ The root was pounded and mixed with oil of roses and wine for external application.¶ The *bark* was pounded from the fresh root, put in a press,¶ and the juice thus obtained allowed to thicken in the sun, after which it was stored in earthen vessels.\*<sup>1</sup> The bark was sometimes stripped from the root and hung away on strings, to be used later in making *mandragora wine*. †<sup>1</sup> We have two receipts for the manufacture of this: (1) It was prepared by boiling down the roots to a third in wine and allowing the liquor obtained to thicken; ‡<sup>1</sup> (2) The bark was stripped off and hung on strings and let down into a vessel containing sweet wine, which was allowed to stand thus for three months. §<sup>1</sup> An account of a recent attempt to reproduce the mandragora wine of the ancients is given on page 509 below.

The uses of mandragora in medicine were very many. Its external application, in various forms of plasters and poultices, seems to have had a soothing and cooling effect on the parts to which it was applied. Thus it was a remedy for erysipelas ||<sup>1</sup> (which the Latin writers frequently call *ignis sacer*), and for many other diseases accompanied by inflammation; it was therefore much used in the treatment of eye troubles. ¶<sup>1</sup> Hippocrates mentions its use for inflammation of the anus.\*<sup>2</sup> It was applied to abscesses, †<sup>2</sup> indurations, ‡<sup>2</sup> and tumors. §<sup>2</sup> We are further told that it

\* Diosc., 1. 572.

† Ibid.; Plin., 25. 149.

§ Diosc., 1. 571.

‡ Diosc., 1. 571; Plin., 25. 148.

¶ Plin., 25. 147.

¶ This press is mentioned in the pseudo-Galenian treatise De Simplic. Med. ad Patern. (Junta, Venet., 1609, Sp. 91G): succus organo exprimitur, quod Græce mandragorochylon appellamus.

\*<sup>1</sup> Diosc., 1. 571.

†<sup>1</sup> Ibid.

||<sup>1</sup> (Theophr., 9. 9. 1); Diosc., 1. 572; Plin., 26. 121; Theophr. Non., Epit., cap. 246.

¶<sup>1</sup> Plin., 25. 147; Diosc., 1. 572.

‡<sup>2</sup> Diosc., 1. 572; Plin., 26. 145.

§<sup>2</sup> Plin., 26. 93 (*panus*); Diosc., 1. 572, Plin., 26. 24 (*struma*); Diosc., 1. 572

†<sup>1</sup> Ibid.

§<sup>1</sup> Id., 1. 736.

\*<sup>2</sup> Hipp., 3. 338.

‡<sup>2</sup> Diosc., 1. 572.

(*tuberculum*).

was good for ulcers\* and wounds.† According to Pliny, leaves of mandragora with barley meal would remove foreign substances adhering to the surface of the body.‡ It was used to remove marks from the face or body.§ A poultice of the scraped root mixed with vinegar is recommended for gout by Theophrastus,|| while Pliny cites as a remedy for this disease a poultice made of the leaves and barley meal, or of the root and wild cucumber, or the root alone steeped in water.¶ It was applied to snake-bites.\*<sup>1</sup> It was used in preparing pessaries †<sup>1</sup> and suppositories.†<sup>1</sup> Taken internally it was employed in various ailments. Thus it is mentioned as a remedy for different female troubles.‡<sup>1</sup> Hippocrates recommends it for quartan fever.§<sup>1</sup> It was efficacious in curing defluxions of humors.||<sup>1</sup> The juice mixed with some liquid, like honey and water, was thought to draw phlegm, or black bile, ¶<sup>1</sup> the presence of which in the body the ancients regarded as the cause of many diseases.\*<sup>2</sup>

Not only was it thought to be efficacious in the treatment of the body, but it was also employed in mental disorders. Consequently it was recommended for those suffering from convulsions,†<sup>2</sup> or those oppressed with melancholia with suicidal tendency, †<sup>2</sup> and for the treatment of the insane, the idea here being generally to produce sleep, as appears from a passage in Celsus. ‡<sup>2</sup>

\* (Theophr., 9. 9. 1); Plin., 26. 145.

† Plin., 26. 145.

‡ Plin., 26. 149.

§ Diosc., 1.572, 2. 151; Plin., 25. 175.

|| (Theophr., 9. 9. 1). Although the plant known to Theophrastus by the name of mandragora was surely not the same as the mandragora of Dioscorides and Pliny, it does not seem out of place to cite the uses which he mentions, inasmuch as it is by no means certain that he took the description of the plant and his account of its uses from the same source; it might easily be the case that the former is wrong and the latter correct. Moreover his account of its uses agrees very well with those of other writers.

¶ Plin., 26. 104-105.

\*<sup>1</sup> Diosc., 1. 572; Plin., 25. 150.

†<sup>1</sup> Hipp., 2. 711; Diosc., 1. 572.

‡<sup>1</sup> Different uses are mentioned in Plin., 26. 156, Diosc., 1. 572, 573, Hipp., 2. 862.

§<sup>1</sup> Hipp., 2. 251.

||<sup>1</sup> Diosc., 1. 736; Plin., 25. 147.

¶<sup>1</sup> Hipp., 2. 739; Diosc., 1. 571; Plin., 25. 150.

\*<sup>2</sup> In the so-called *Dynamidia* (Ang. Mai's Cl. Auct., vol. 7, p. 457) mandragora is said to relieve persons suffering from nausea. This fact is recorded nowhere else, and Pliny (25. 150) states that it *produces* vomiting.

Dioscorides (1. 574) notes that the root of the "third species" is said to be efficacious as an antidote (see Galen, 14. 1 ff.) when taken with the so-called maddening nightshade.

†<sup>2</sup> Hipp., 2. 139.

‡<sup>2</sup> Cels., 3. 18 (ed. Daremberg, p. 100).

Its soporific power was surely known from very early times, — so well known, in fact, that it became proverbial.

In Xenophon we read :

Symp., 2. 24: Wine, moistening the soul, lulls cares to sleep, just as the mandragora does men's bodies.

Plato, in the Republic, speaks of rendering the captain of a ship incapable by means of it :

Rep., 488 C: Having chained up the noble captain's senses with mandragora or strong drink or otherwise.

Demosthenes compares the torpor of his fellow-citizens to that of persons who have drunk mandragora :

Philip. 4. 6: It is not in these respects alone, men of Athens, that we are behindhand; we cannot even be aroused, but are like to men who have drunk mandragora.

Aristotle includes it in a list of narcotic plants :

De Somn., 3: . . . the narcotics; for they all cause heaviness of the head, both the drinkables and the eatables, — poppy, mandragora, wine, lolium.

Philo the Jew refers to it in a simile in a way that indicates familiarity with this property of the plant in his time :

De Vita Contempl., § 5: Others of the apparently more moderate feasters, when they have drunk unmixed wine as though it were mandragora, fall down and . . . are overcome by deep sleep.

Frontinus tells how the Carthaginian general Maharbal captured a whole host by means of wine drugged with mandragora :

Stratag., 2. 5. 12: Maharbal, having been sent by the Carthaginians against the rebellious Africans, knowing that these people were very fond of wine, mixed a great quantity of it with mandragora, the effect of which is half poisonous and half narcotic. Then, after beginning a light skirmish, he left off by design, and in the middle of the night feigned flight, leaving part of the baggage and all the drugged wine in camp. The barbarians seized the camp in great delight, and eagerly drank the wine. Soon they were stretched on the earth like dead men. Maharbal then returned, and captured or killed them.

Polyaenus relates a very similar story about the Carthaginian general



Himilco;\* he also attributes Caesar's getting the better of the pirates who captured him near Malea to his sagaciously including wine drugged with mandragora among the presents which he caused to be sent along with his ransom money :

Stratag., 8. 23. 1: Epicrates, at Caesar's command, provided along with the ransom money supplies for a great feast, and a vessel filled with swords, and wine mixed with mandragora. . . . The pirates, rejoicing at the great amount of money, hastened to indulge in a sumptuous banquet, drank the drugged wine, and were thrown into a stupor. Then Caesar ordered his sleeping victims to be put to death.

Whether or not there was any historical basis for such stories as these, they would not have arisen had not the soporific properties of the plant been a matter of common knowledge.

Plutarch intimates that the mere fact that mandragora grows near vines is sufficient to impart lethargic properties to them :

Moral., 15 F. : The mandragora, growing near vines and imparting its force to the wine, makes the sleep of those who drink it gentler. †

Further references to the narcotic properties of the plant are found in Lucian. In *Timon* we read :

Timon, 2: You sleep as though under the influence of mandragora, neither hearing those who swear falsely nor regarding wrong-doers.

In the *Verae Historiae*, describing the City of Sleep in the Island of Dreams, he says :

Ver. Hist., 2. 33 : A wood has sprung up all around it, and the trees are lofty poppies and mandragoras.‡

\* Stratag., 5. 10. 1.

† Compare with this Plin., 14. 110 : Mira vitium natura saporem alienum in se trahendi, quare et salicem redolent Patavinorum in palustribus vindemiae. Plutarch also alludes to the soporific properties of mandragora in Moral., 652 C.

‡ A third passage in Lucian referring to mandragora admits of two interpretations: Adv. Ind., 23 : ἀλλ', ὃ κατὰ πνευγόν, ὅλεις τοσοῦτον μανδραγόραν κατακεχύσθαι αὐτοῦ, ὥς ταῦτα μὲν ἀκούειν, ἐκεῖνα δὲ μὴ εἰδέναι, ὅλος μὲν σου ὁ μεθ' ἡμέραν βίος, ὅλοι δὲ σοι πότοι, ὅποῖαι δὲ νύκτες καὶ ὅλοις καὶ ἡλίοις ξυγκαθεύδεις ; One might see here a reference to madness produced by mandragora : "do you think him so mad that, while he hears this, he does not investigate your record ?" ; but it is probably better to understand a reference rather to *lethargy* ; this is of course in line with the other allusions to mandragora in Lucian.

In the spurious Demosthenis Encomium, 36, there is a reminiscence of Demosth., Philip. 4. 6, quoted above.

Apuleius relates a striking story of a youth put to sleep by mandragora; he makes a physician say:

Metamorph., 10.-11: I did give him a drug, but it was a soporific, — the famous mandragora, celebrated for the lethargy which it is known to produce, and causing a stupor very like death.

Macrobius alludes to mandragora as a remedy for insomnia:

Saturn., 7. 6. 7: Physicians apply cooling preparations — the juice of poppy, mandragora, and the like — to persons suffering from insomnia.\*

The patristic writers, whose interest centres in the question why Rachel desired Leah's son's "mandrakes," occasionally refer incidentally to the use of mandragora in medicine, and a few mention its use as a soporific.

Cyrillus, in a commentary on Genesis, writes:

Ad Gen. 30. 14: Mandragora is a soporific, and overcomes with a deep stupor those who partake of it.

In the commentary of Theodoretus on Canticles we have:

Ad Cantic. 7. 13: Mandragora has the property of producing sleep, as the physicians say. . . . Those who have drunk mandragora have no perception of matters affecting the body.

These are the words of Basilus:

Hom. 5.: Physicians induce sleep by means of mandragora.

It is evident that its soporific power was regarded by the lexicographers as its most important characteristic.

Hesychius says, under the word *μανδραγόρας*:

A kind of plant, intoxicating and soporific.

And under the word *ύπνοτικόν*:

The mandragora.†

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\* A number of references to the medical and botanical writers may be cited here; they are of the same import, and it does not seem necessary to quote them: (Theophr., Hist. Plant., 9. 9. 1, Caus. Plant., 6. 4. 5); Cels., 3. 18 (p. 100 Daremberg), 5. 25. 2; Diosc., 1. 571 f., 736; Plin., 25. 150; Seren. Samon., 998; Coel. Aurel., Acut. Morb., 2. 4; Alex. Trall., 1. 11 (p. 18 Andern.); Theoph. Non., Epit., capp. 25 and 145.

† Hesychius also gives *μανδραγόρας · δ Ζεύς*, which no one seems able to explain. Is there possibly some connection with Lucian, Timon, 2, quoted above?

In Photius, under the word *μανδραγόρας*, we read :

A soporific fruit.

Suidas says, under the same word :

A soporific fruit, or one capable of producing forgetfulness. "And he appears to have drunk a great quantity of mandragora."

The scholiast on Plato remarks on the passage from the Republic cited above :

The fruit of this plant is soporific.

And lastly Joannes Siceliota says in a note on the *Ideae* of Her-mogenes : \*

The mandragora is a soporific and deadly plant.

References to this property of mandragora are very frequent also in the works of mediaeval and early modern writers. They are, however, in most cases reminiscences of the classic authors, and indicate slight or no knowledge of the plant from personal observation.†

\* Walz, *Rhet. Graec.*, vol. 6, p. 253.

† Compare the words of Pierius Valerianus, *Hieroglyph.*, lib. 58 : *Susplicari possum apud scriptores nostros parum de mandragora liquere antiquissimumque eius usum et utilitatem esse temporibus nostris incognitam.*

The following three passages are worth quoting as containing something out of the ordinary about the soporific power of mandragora :

Rhazes (9th-10th cent.), in Serapion's chapter on mandragora (ed. Venet., fol. 98) : *Dixerunt mihi quidam ex antiquis Babyloniae quod puella quaedam comedit quinque poma mandragorae et cecidit sincopicata et facta est tota rubicunda. Et quidam superveniens effudit super caput aquam nivis totiens donec surrexit.*

Petrus Victorius (1499-1585), *Var. Lect.* (Florent., 1553), lib. 4, cap. 3 : *Accepi Turcarum regem alere tigrim quae catenis etiam vinctis tuto tractari non possit. Quare cum aliquo convehere velint curatores ipsius sucum mandragorae praebere solitos.*

Levinus Lemnius (1505-1568), *Herb. Bibl. Explic.*, cap. 2 (ed. Frankof., 1591, p. 9) : *Mihi vero quid de mandragora accidit obiter enarrabo. Quum autem aestivis mensibus (nam eo tempore poma mandragorae se proferunt) semel atque iterum in museo nostro amabilem ac speciosum eius stirpis fructum negligenter collocassem, ita somnolentus sum effectus ut aegre sopor excuti possit. Quum autem obnixè oblectarer somnolentiae illamque excusisse conarer, aegre id obtinui, nec rationem tanti veterni inire potui ; tandem quum quaquaversum dimovissem oculos, obtulit se a tergo pomum mandragorae, quo amoto atque in alium locum translato factus sum alacrior atque torporem depulsi omnemque oscitantiam discussi.*

To these may be added a rather amusing receipt for a potion calculated to

It is probable, indeed, that the most general use of mandragora depended on its soporific properties. It was an ingredient of an enormous number of those compounds which the ancients called *anodynes* (*ἀνώδυνα*), meaning by the word remedies which relieve pain by causing sleep.\* To gain an idea of how common this use was, one has only to turn, for example, to the 13th volume of Galen, in Kühn's *Medici Graeci*, and to note the number of times mandragora is mentioned in the anodynes there recommended.

Of all the statements that have come down to us regarding the uses of mandragora in ancient medicine, the most interesting are those which concern its use as an anaesthetic before surgical operations. Since anaesthetic agents began to be used in modern surgery, in the first half of the last century, the tradition in regard to their use by the ancients has been the subject of alternate wonder and disbelief. Says the *New York Medical Journal* of June 23, 1888:

It is probably with almost complete incredulity that most of us have read of the anaesthetic virtues of the mandrake as recounted by the writers of antiquity.

Most modern writers on anaesthetics have paid comparatively little attention to the tradition of their use by the ancients, and those who have undertaken to examine this tradition more fully have often made very inaccurate statements about it,† frequently taking their material at

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cause temporary mental aberration, in which the soporific properties of the plant are again referred to:

Giov. Batt. della Porta (1536-1615), *Mag. Nat.* (Lugd. Bat., 1650), lib. 8, cap. 2: *Morion si drachma propinetur infatuare dicit Dioscorides. Nos id faciliter fecimus vino; quod his constat: Mandragorae radices accipito, in mustum adhuc fervens et in bullas tumens demittito, operculum indito, aptoque loco serveter binis mensibus. Quum eo indigueris potui dabis. Qui id hauserit, ubi multum profundo fuerit demersus somno, mente capitur, ut per diem non parum deliret; ac post somnum solvitur dementia, nec damnum affert; multumque fuerit voluptuosum videre: periclitamini (!).*

\* See Cels., 5. 25. 1; Galen, 10. 816 f.; Aret., *De Cur. Acut. Morb.*, 2. 5.

† Thus a writer in the *Philadelphia Medical News*, 66 (1895), p. 313, speaks of "Dioscorides mentioning the method of preparing the sleeping-apple" (!), a thing which Dioscorides nowhere mentions, nor any other ancient writer, so far as I am able to find. The same writer attributes the following to Herodotus: "Herodotus states that in early times anaesthesia was produced by the inhalation of *blhang* or *hasheesh*, even before the use of mandragora, and it was used for the express purpose of operative procedure. He also states that the Greeks were familiar with

second hand, and presenting it without due regard to the credibility of the sources. There is surely room for a fuller treatment of the subject than it has yet received.

The statement that physicians used mandragora before surgical operations to prevent sensation, while repeatedly mentioned by writers of later times, does not occur in any work which has come down to us of a date earlier than the first century of our era. In that century we find it in the writings of Dioscorides and the elder Pliny.

Dioscorides refers to the matter three times, as follows :

1. 571 : Some persons boil down the roots in wine to a third, strain it, and put it away, using one cyathus in the case of persons suffering from insomnia or severe pain, or those about to be cut or cauterized, when they wish to produce anaesthesia.

1. 572 f. : Wine is also made from the bark of the root without boiling ; for this purpose put three minae into one metretes of sweet wine. Three cyathi of this should be given to persons about to be cut or cauterized, as has been said above. They do not feel the pain on account of the ensuing stupor.

1. 574 : This (the "third species" of mandragora) is said to produce stupor when drunk . . . or . . . eaten. The patient falls asleep in the position in which he takes it, having no sensation for three or four hours from the time at which it is administered. Physicians use this also when they are about to cut or cauterize.

These are the words of Pliny :

25. 150 : Its narcotic power varies with the strength of the patient ; an average dose is one cyathus. It is drunk . . . before incisions and punctures to remove sensation ; some persons can be put to sleep merely by the odor.

Nothing further regarding this use appears in literature until several centuries after the time of Pliny. The last chapter of a work called *De Viribus Herbarum*,\* formerly wrongly ascribed to Apuleius of Ma-

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the use of the drug. Literature on the subject also shows that the Scythians were in the habit of producing intoxication by means of inhalation of the vapor of hemp." The ultimate source of the above is Herod., 4. 75 : ταύτης ὧν οἱ Σκύθαι τῆς καννάβιος τὸ σπέρμα ἐπεὶ ἀν λάβωσι, ὑποδύνουσι ὑπὸ τοὺς πέλους καὶ ἔπειτα ἐπιβάλλουσι τὸ σπέρμα ἐπὶ τοὺς διαφανέας λίθους· τὸ δὲ θυμῶνται ἐπιβαλλόμενον καὶ ἀτμίδα παρέχεται τοσαύτην ὥστε Ἑλληνικὴ οὐδεμία ἂν μιν πυρὶν ἀποκρατήσκει. οἱ δὲ Σκύθαι ἀγάμενοι τῇ πυρὶν ὠρόνται. A very different story when traced to the fountain-head !

\* Or *De Herbarum Virtutibus*, or *De Medicaminibus Herbarum* ; the title is variously given. This passage is from chapter 131 in the edition published with "*Celsus et Alii Medici*" by Chr. Wechel, Parisii, 1529.

daura, and now generally assigned to the 5th century, contains a description of mandragora, in which we read these words :

If any one is to have a member amputated, cauterized, or sawed, let him drink an ounce and a half in wine; he will sleep until the member is taken off, without either pain or sensation.

In Isidorus (6th-7th century) we meet with it again :

Orig., 17. 9: Its bark is given in wine to those who are about to be surgically operated upon, in order that they may fall into a stupor and may not feel the pain.

Not long after Isidorus this use is referred to in the chapter on mandragora in the so-called *Dynamidia*.\*

Put three librae of the bark of the root into an amphora of wine, and set it away to season. Give four cyathi to a person about to undergo a surgical operation. It puts one to sleep† immediately after drinking it, and one does not feel the cutting.

We read the following in Serapion's (9th century) chapter on mandragora : ‡

If it is necessary to cut or cauterize any member, and we wish the patient not to feel the pain, let him be given *more* to drink.

A measure of four obols is given to drink to a person whom it is necessary to cauterize or cut. He will not feel the cauterizing or cutting because of the stupor which ensues.

Surgeons administer it when they wish to cut or burn a member.

Avicenna (980-1037 A. D.) says : §

If any one wishes any of his members cut, let him drink three obols of it in wine, and it will produce stupor.

In the 11th century Bruno Astensis mentions this use :

Expos. Super Cantic., 7. 13; It is said that those who are to be surgically

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\* This passage is from A. Mai's Cl. Auct., vol. 7, p. 457. On the probable date of the treatise (6th-8th century) see Teuffel, Röm. Litt.<sup>4</sup>, 498. 3.

† The text gives *saporem facit*, which seems to be a mistake for *soporem f.*

‡ The passages are taken from the Latin translation of the Tractatus Primus, fol. 98 of the edition published at Venice in 1479.

§ The passage is from the Latin translation of the Liber Canonis de Medicinis, etc., by Gerardus Cremonensis, published by Junta at Venice in 1555, lib. 2 cap. 366.

operated upon do not feel the cutting or burning if they have drunk the outer bark \* of this fruit.

Again, Bartholomaeus Anglicus, compiler of a work called *De Proprietatibus Rerum*, written near the middle of the thirteenth century,† who devotes considerable space to mandragora, mentions this use :

Lib. 17, cap. 104: Its bark mixed with wine is given to drink to those who are to be surgically operated upon, in order that they may fall into a stupor and may not feel the pain.

Pierius Valerianus, referred to above, who flourished in the latter part of the fifteenth and beginning of the sixteenth century, says :

Hieroglyph., lib. 58: Physicians have had a great deal to say about the soporific power of mandragora, especially this, that its use is very common and very effective in putting those who are to be cauterized or cut into a stupor; for it is said that after they have taken a draft thus prepared (i. e. with mandragora) their sleep continues to be very heavy for about four hours, so that they feel neither the cautery nor the knife.

Lastly, we may cite Giovanni Battista della Porta (1536–1615 A. D.):

Mag. Nat., lib. 8, cap. 1: Dioscorides says that persons will sleep right on in the position in which they have drunk mandragora, all sensation being destroyed for three or four hours from the time when the draft was administered, and that physicians use this when they wish to cauterize or cut any one.

This is the testimony of writers regarding this use of mandragora, so far as I have been able to collect it, and I feel reasonably confident that in the investigation of the question I have not overlooked any reference that would have any considerable weight. I have included the passages from the mediaeval writers for the reason that if it can be shown that it is probable that mandragora was used for this purpose in the middle ages, our belief in this use in antiquity — which is attested by so few passages from ancient writers — will be greatly strengthened.

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\* It is not clear just what Bruno means by *exteriorem huius pomi corticem*. He uses the word *pomi* evidently because he is commenting on *dudā'im*, i. e., *μανδραγορῶν μῆλα*. Probably *exteriorem huius pomi corticem* is a condensed expression for *exteriorem corticem radices herbae e qua nascitur hoc pomum*, in which case *corticem* has its usual meaning of *bark*; otherwise we should have to translate "the outer rind of this fruit," which could only be a mistake of the writer, referring to the fruit the virtues elsewhere recorded of the bark.

† See the introduction to the extracts translated by Robert Steele, *Medieval Lore* (London, 1893), p. 1.

From the passages above cited it appears that there has never been a time since the first century of the Christian era when this use of mandragora was wholly unknown to *writers*. But what is the evidence that throughout this time *physicians were actually using the plant as an anaesthetic*? Is there any such evidence, or must we believe that they simply handed on this story of its virtues without ever testing it? We shall best arrive at a conclusion by examining the passages in these several authors separately. For the sake of convenience I shall begin with the one cited last.

1. Giovanni Battista della Porta. He simply quotes Dioscorides, and names him as his authority. Besides, the words I have quoted are taken from the latter's description of his "third species," the identification of which, as we have seen, is very doubtful.

2. Valerianus. In the note on p. 494, above, I have quoted this author as saying that the ancient uses of mandragora were probably little known in his time. He cites Dioscorides and Pliny, and he had perhaps read elsewhere of the use of the plant to produce anaesthesia,\* but there is no reason to suppose that he had any personal knowledge of its use for this purpose.

3. Bartholomaeus Anglicus. The work from which our passage is taken does not profess to be more than a compilation from many sources. In his chapter on mandragora the author cites Dioscorides, Pliny, and later writers. The chapter begins with an excerpt from Isidorus, to which the passage I have quoted belongs. There is no independent evidence here.

4. Bruno Astensis. The words of this writer do not indicate that he had any personal knowledge of this use of the plant. It is evident from the wording of the passage quoted that he took it from Isidorus.

5 and 6. Serapion and Avicenna. It will prove convenient to treat these writers in their chronological order.

The works of Serapion, a Syrian, were early translated into Arabic, and came down to posterity as the oldest treatise on medicine in the Arabic language.† The bulk of his chapter on the mandragora is an almost word for word translation from Dioscorides; a few lines of it appear to be taken from Galen, a few resemble the pseudo-Apuleian chapter, and a few are of wholly uncertain source; all the passages on the use of the plant as an anaesthetic are based upon Dioscorides.

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\* His remark, on the authority of "physicians" (*medici multa tradiderunt*), that this use of mandragora was very common (*plurimus*) is worthy of note. But he does not cite the names of his authorities, and it hardly seems likely that he had any particular physicians in mind.

† See Neub.-Pag., vol. 1, p. 596.



Two words in one of these passages are worthy of especial notice. The passage in Dioscorides,

Some persons boil down the roots in wine to a third, strain it, and put it away, using one cyathus in the case of persons suffering from insomnia or severe pain, or those about to be cut or cauterized, when they wish to produce anaesthesia,

is given by Serapion thus :

Some persons boil down the root of the mandragora with wine until a third part of it disappears,\* strain it, and put it away. They take a quantity of one obol and give it for insomnia and to allay pain. And if it is necessary to cut or cauterize any member, and *we wish* the patient not to feel the pain, let him be given *more* to drink.

The two words to which I wish to call attention are *we wish* (*volumus*) and *more* (*plus*). Dioscorides says :

Some use a cyathus for insomnia and severe pain, and when they wish to produce anaesthesia before cutting or cauterizing ;

while Serapion says :

Some take an obol and use it for insomnia and severe pain, and when *we wish* to produce anaesthesia, let *more* be given.

Serapion, then, if the Latin translator has correctly reproduced his words, used a verb in the first person (*volumus*) where he found a verb of the third person (*βούλονται*) in Dioscorides ; moreover, *he himself added* the word *more* (*plus*), for Dioscorides says nothing about any distinction in quantity here. This goes to show that Serapion did not depend entirely upon Dioscorides for this information ; and since he was able to add something to the words of Dioscorides, there seems ground for believing that he knew of this use of mandragora from personal experience. This view is confirmed by an examination of Avicenna's chapter on the plant.

The works of Avicenna, the most celebrated Arabian physician and philosopher, were in common use during the middle ages even in the universities of Europe. His chief sources in general are Greek ; the sources of his account of the mandragora are not so easy to trace as those of Serapion's, but it is evident that he draws here principally from Dioscorides and Galen ; a very considerable part of the chapter shows a marked resemblance to the chapter on mandragora appended to the work of Pseudo-Apuleius.

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\* There is a discrepancy here between Dioscorides and Serapion, perhaps due to a mistranslation.

The suggestion made above, that in the word *plus* used by Serapion we have evidence of an addition to Dioscorides, is nicely confirmed by an examination of Avicenna's words. Serapion says that one who has taken mandragora before an operation does not feel the pain *because of the stupor which ensues* (*propter subât quod accidit*); furthermore, that when physicians wish the patients not to feel the pain (i. e., when they wish to produce *subât* [an Arabic word which the translator was not able to give in Latin]) they must administer more than when they merely wish to relieve insomnia (i. e., merely wish to produce sleep [*somnus*]). One immediately infers that there is a distinction between *subât* and *somnus*; and the Arabic bears us out: the word *subât*, primarily meaning *rest*, while it may occasionally be used of ordinary sleep, properly denotes a *deep sleep* or *stupor*.\* And that these writers had this distinction in mind is conclusively proven by two passages from Avicenna:

It produces stupor (*subât*), and it produces sleep (*somnus*).  
To produce *stupor* MORE is given, to produce *sleep* LESS.

Furthermore, the repetition of Serapion's *more* (*plus*) here, with the *less* (*minus*) in the following clause removes any suspicion that *plus* got into the Latin version of Serapion merely through the carelessness of the translator.†

In the writings of these two physicians, then, we have a distinct addition to the words of Dioscorides and his successors who wrote about the plant, and good evidence, I think, that they both had a personal knowledge of its use as an anaesthetic.

7. *Dynamidia*. Little is known about the authorship of this work, which Teuffel includes in a list of Latin writings derived from Greek sources composed on the border-line of antiquity and the middle ages.‡ The chapter on mandragora is drawn mostly from Dioscorides, and the statement about its use as an anaesthetic is manifestly taken from him. There is no reason to think that we have here any independent evidence.

\* For the proper interpretation of this word, and for other helpful suggestions, I am indebted to Professor George F. Moore, of Harvard University.

† Some one might object here that, granting that Serapion wrote *plus*, Avicenna probably copied his account from him. I am confident that any one who will compare the accounts of mandragora given by these writers with each other and with their sources will agree with me that Avicenna is the more independent of the two in his treatment of the subject. It seems therefore very unlikely that he would have blindly taken from his predecessor a fact of such importance in connection with the plant.

‡ See footnote, p. 515.

8. Isidorus. This writer used as the chief source of the 17th book of the *Origines*, in which the passage above quoted occurs, a Latin translation of Dioscorides.\* The section on mandragora is brief, containing nothing not found in Dioscorides except a few unimportant comments. It is to be observed that, while the sentence on the use of the plant as an anaesthetic seems to be simply an excerpt from Dioscorides, yet this is the *only* medicinal use which the author thinks it worth while to mention.

9. Pseudo-Apuleius. The authorship of this work is uncertain, and the chapter on mandragora is evidently an interpolation.† I have had no means of ascertaining when it — the last chapter in the work —

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\* See Stadler, *Archiv für Lat. Lexicog.*, **10**, p. 403 ff.

† It is a recognized fact that this work is interpolated in innumerable places throughout; certain parts of almost any chapter can be picked out as interpolations (see Schanz, *Röm. Litt.*, Teil 3, p. 114 f.). The chapter on mandragora stands apart from all the rest, and I am persuaded that it is a later addition to the already interpolated work.

From information given by Payne, *English Medicine in the Anglo-Saxon Times* (London, 1904), p. 72 ff., it is evident that Anglo-Saxon versions of the pseudo-Apuleian work present the chapter on mandragora in a form very different from that which appears in Wechel's edition, giving many things that are not found there, and omitting some that are. This goes still further to show that the latter part of the work was tampered with.

Several things have led me to this conclusion: (1) The chapter does not appear in all the printed editions, which indicates that it is lacking in some of the manuscripts; for example, the Basel edition of 1597 (where the *De Medicaminibus Herbarum* is printed with the works of Apuleius of Madaura) has no chapter on mandragora; in the Paris edition of 1529 (Wechel) it is the last chapter in the book. So with various other editions: see Meyer, vol. 2, p. 316 ff. The information about the manuscripts contained in Koebert's dissertation (see footnote, p. 488, for the title) goes to confirm this (see next footnote, p. 521). (2) The style of this chapter as it appears in Wechel's edition differs in several points from the rest of the work: (a) Here we have a connected description of the plant and its virtues, without frequent repetition of the name; elsewhere the account of the virtues of the plant under discussion is divided into several *tituli* (the term used by Ackermann; see Koebert, p. IV, note), at the beginning of which the name of the plant is almost invariably repeated. (b) There is no list of synonyms at the beginning of this chapter, as there usually is elsewhere. (c) While conditional sentences with *si* (like *si dabis . . . sanabitur*) are rare in the other chapters, this one has no less than six *si* clauses. (3) The interpolated plant descriptions throughout the rest of the work show a marked resemblance to Dioscorides (see Rose, *Hermes*, **8** [1874], p. 57, and Koebert, p. 39), while the description of the mandragora shows a wide divergence from him; it records the resemblance of the root to the human form, says that its color is ashen (*cinericius*), compares the leaves of the "male" to those of *blitum*, and of the "female" to those of lettuce. None of these things is stated by Dioscorides or his interpolator.

became attached to the rest. The noteworthy fact about it is that it corresponds throughout to Avicenna's chapter on mandragora.\* The

\* The resemblance between Avicenna's account of mandragora and this has been referred to above. The following table, based upon a very careful comparison of this chapter with Serapion and Avicenna, will make it clearer :

(1) Facts recorded about mandragora in this chapter . . .	25
(2) Facts common to this chapter, Serapion, and Avicenna . .	9
(3) In this chapter and Avicenna and not in Serapion . . .	6
(4) In this chapter and Avicenna and nowhere else . . . .	5
(5) In this chapter and Serapion and not in Avicenna . . .	3
(6) In this chapter and Serapion and nowhere else . . . .	0
(7) In this chapter and in neither Serapion nor Avicenna . .	4
(8) In this chapter and nowhere else . . . . .	3
(9) Partly the same in this chapter, Serapion, and Avicenna .	2
(10) Doubtful . . . . .	1

In this table, (4) and (6) seem to me most significant ; it is not necessary to suppose that the author of this chapter used Serapion at all, but it can hardly be accidental that he and Avicenna have five facts in common which are found nowhere else. As regards (8), it is not necessary to attribute any originality to the author of this chapter ; of the three facts which he states and which no other writer seems to have recorded ([a] cortex est subtilis, [b] folia habent virtutem stringendi, [c] poma curant erysipelas), [a] is perhaps a mistake, and [b] and [c] may easily have been inferred from virtues recorded by other writers.

Koebert, pp. 1-10, describes five manuscripts of Pseudo-Apuleius : (1) *Monacensis*, 6th or 7th cent., (2) *Vratislaviensis*, 9th or 10th cent., (3) *Cassinensis*, 9th or 10th cent., (4) *Lugdunensis*, 15th cent., (5) *Lugdunensis alter* (*Lat. Voss. E. 13*), 15th cent. (The numbers in parentheses are mine, and the manuscripts, it will be observed, are arranged in chronological order ; Koebert numbers the manuscripts differently on pp. 1-3 and 3-10, and I have been unable to discover the principle on which he has arranged either list.) (4) and (5) are fragmentary, and do not contain the chapter on mandragora (chapter 131). (1) has only the beginning of the chapter on mandragora (Koebert, p. 1) ; (2) has chapter 131, but Koebert says of the manuscript (p. 5) : Hic continet 118 folia, quorum 1-113 integra, reliqua valde corrupta sunt. As the mandragora chapter is always the last, it is evidently among the *corrupta*. (3) has chapter 131 Koebert, p. 2), but Koebert says that he had examined only certain chapters in this manuscript, when the monastery which owns it was closed to *res profanae* for Holy Week, and that he had to leave with the work unfinished. He did not examine chapter 131. There is thus nothing in Koebert's account of the manuscripts which makes it appear improbable that the bulk of the chapter on mandragora was joined to the pseudo-Apuleian work after the time of Avicenna (A. D. 980-1037).

What is most needed in order to prove that the chapter was drawn from Avicenna is information as to the time at which it first appeared in the manuscripts, — information which I am unable to get in this country. I have referred in the preceding note to the lack of a list of synonyms at the beginning of the chapter.

latter appears to be by far the more original of the two, and I believe that investigation will prove that this chapter was added to the pseudo-Apuleian work after the publication of Avicenna's writings, and is based on him.\* The emphatic way in which the anaesthetic virtues of mandragora are proclaimed attracts attention; but the language is somewhat grotesque — *if any one is to have a member amputated* (? : *emutilandum*) *or burned or sawed* (!) — and it sounds more like that of an enthusiastic scholar who has stumbled on a very remarkable statement which he is eager to promulgate, than of a competent medical writer. We can hardly base any argument for this use of mandragora in antiquity on this passage.

10 and 11. Pliny and Dioscorides. The lives of these writers were contemporary, though Pliny appears to have finished his work a little later than Dioscorides.† The multitude of striking parallels in their writings shows that they stand in close relation to each other. Dioscorides has been thought by some to have used Pliny, and others have thought that Pliny drew from Dioscorides. The correct view is beyond doubt that of Wellmann, that they based their botanical writings upon common sources, and chiefly upon Sextius Niger, who flourished in the first half of the first century of the Christian era. The work of Sextius, however, appears to have been a compilation, so that we are unable to trace to their original source the parts which Dioscorides and Pliny took from him.‡

A careful comparison of the mandragora passages in Dioscorides and Pliny makes it evident that they are among those which the two writers took from a common source. As has been pointed out, the passages essentially agree; the slight discrepancies have been discussed above.

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The interpolator of the synonyms in the rest of the work might easily have obtained them for mandragora by consulting Dioscorides. That they are not given indicates that the chapter did not belong to the work when the synonyms were added to the other chapters.

\* Even if it should be proven that Avicenna drew from this chapter, instead of *vice versa*, it would not at all weaken the force of the argument that Avicenna knew of this use of mandragora by personal experience, for there is no mention here of a distinction in the quantity necessary to produce sleep and stupor respectively. But the very character of the pseudo-Apuleian work — it was written and circulated for the layman's use, to enable him to do without the services of the physicians, *qui saeviores ipsis morbis existant* (Koeber, p. III) — makes it highly improbable that a medical writer would have used it.

† Meyer, vol. 2, p. 100.

‡ On the whole question see Wellmann, *Hermes*, 24 (1889), p. 530 ff.

The statement about the use of mandragora as an anaesthetic as it appears in Pliny is so unemphatic, so purely incidental, and Pliny's generally uncritical habits are so well known, that it furnishes no argument for its truth.

On the other hand, how strong an argument for its truth is the fact that it is found in Dioscorides? The claim to *originality* made in the preface of his work \* must, in the light of Wellmann's arguments, be admitted to be considerably exaggerated. Yet he is not to be charged with being grossly uncritical in the admission of material. A careful reading of all his writings reveals a decidedly conservative spirit, tempered in the main by sound judgment. "Child of his time" (Wellmann) he undoubtedly was, and it is somewhat disappointing to find in his work a certain amount of nonsense mixed in here and there alongside of perfectly sound doctrine. Yet where he makes mention of amulets, "sympathetic" † remedies, and the like, his tendency is to report them with the addition of "they say" (*ιστοροῦσι*), "it is said" (*ιστορεῖται*), "some record" (*γράφουσί τινες*), as saving clauses. Doubtless many of the bogus remedies are mentioned only because of the feeling common to writers of his time that everything pertaining to a given subject must be brought in; witness his reason for describing a very great number of ways of preparing wine:

1. 713: Not because the use of them is extensive or necessary, but in order that our report may not be found wanting in regard to any of them.

Furthermore, it is very probable that he was a practising physician,‡ and in that case he must have had an especial interest in such a matter as this, with an excellent opportunity for observation. So that his unreserved admission into his work of the statements here recorded should not be without weight in our estimate of the evidence before us.

The use of the plant is stated three times in his chapter on mandragora, as we have seen. The third of these must be disregarded, since all that he says about the "third species" of mandragora is given on hearsay; the plant referred to has not been surely identified, and this use is nowhere else asserted of a plant resembling and yet distinct from

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\* Diosc., 1. 4.

† On the nature of and ancient belief in "sympathetic" remedies (the word in this sense is not defined in the Century or Standard Dictionaries), see Riess, in Pauly-Wissowa's Realencyclopädie, vol. 1, col. 36.

‡ This is the opinion of Sprengel (Praef. ed. Diosc., p. x) and Meyer (vol. 2, p. 100), and is thought probable by Häser (vol. 1, p. 302).

the mandragora.\* What is said about this use in the other two passages in Dioscorides has every appearance of being based on fact. The two ways of preparing the liquor — with and without boiling — are carefully described, and the proper doses are stated, — one cyathus of the former, three of the latter. It seems conclusive to me that whoever originally wrote the statements which appear here (and I recognize in Dioscorides not the original author of them, but rather the intelligent transmitter) *knew* of this use of the plant.

At the beginning of this investigation I had hoped to find somewhere in classical or later literature an account of the use of anaesthetics in the case of some definite individual, such, for example, as the account of the operation on Marius for varicose veins, from which it is at once apparent that the patient took no anaesthetic.† I am now quite certain that no such testimony is to be found. We must base our faith in the tradition upon presumptive evidence.

To recapitulate: Eleven writers state that mandragora was used for this purpose; all of them probably had access to earlier writings in which the statement appeared. In the case of eight of these eleven — Giovanni Battista della Porta, Valerianus, Bartholomaeus Anglicus, Bruno Astensis, the author of the *Dynamidia*, Isidorus, the author of the chapter in the work of Pseudo-Apuleius, Pliny — the reputation of the writer, or the manner in which this use is stated, is such as to render the testimony of no importance. Regarding the other three, we may draw the following conclusions: The words of Serapion and Avicenna, on account of the important distinction observed in the quantities necessary to produce sleep and stupor respectively, indicate very strongly that the plant was used for this purpose in their time; and the fact that this seems probable for that time gives us much more confidence in the words of the *ancient* writers who record the use. The general tone of the writings of Dioscorides is sober and reliable; for this reason

\* R. Kobert is inexact when he says (Ueber den Zustand der Arzneikunde vor 18 Jahrhunderten, Halle, 1887, p. 21), "Jedenfalls führt Dioscorides von mehreren Solanaceen ausdrücklich an, dass sie die Schmerzempfindung so stark herabsetzen, dass man Glieder amputieren und das Glüheisen anwenden kann, ohne dass der Patient erheblich dabei zu leiden hätte." Dioscorides mentions no plant in this connection except the true mandragora and the doubtful "third species."

† Cicero, *Tusc. Disp.*, 2. 35 and 2. 53; Plutarch, *Marius*, 6. Seneca writes (*Epist. Moral.*, 10. 2 [78]), without giving the name, of a man who *read* during a similar operation: *Tibi fortissimus quisque et victor doloris occurrat: ille qui cum varices exsecandas praerebet legere librum perseveravit.*

the appearance of the statement in his work gives to it to some extent a guarantee of truthfulness. Furthermore, the manner in which this use is stated in Dioscorides makes it all but certain that the one who first wrote the statement founded his record on fact.

While the writers of antiquity have not very much to say about the employment of other anaesthetic agents, yet there are a few passages bearing on the subject which go to confirm the above conclusions.

Both Dioscorides and Pliny mention local anaesthesia:

Diosc., 18. 17: The stone *memphites* is found in Egypt, near Memphis, being of the size of a pebble, brilliant and variegated. It is said that when it is reduced to powder and applied to parts of the body which are to be cut or cauterized it produces a safe anaesthesia.

Plin., 36. 56: It is called *memphites* from the place where it is found, and it sparkles like a gem. It is reduced to powder, mixed with vinegar, and applied to parts of the body which are about to be cauterized or cut: the body is thus benumbed, and does not feel the pain.

These two passages, which must be taken from a common source, agree perfectly; Dioscorides, however, adds that the anaesthetic is *safe* (*ἀκίνδυνον*). This is a most excellent indication that the *physician* Dioscorides understood better and was paying closer attention to the subject in hand than Pliny. For if he copied the word *ἀκίνδυνον* from the common source, while Pliny disregarded it wholly, it is manifest that Dioscorides, in noting this important point, had a more intelligent idea of what he was recording. If, on the other hand, he added the word himself, the same thing is indicated, and it is further plain that he personally knew of the use of anaesthetics, since he thus distinguishes between safe and dangerous ones.\* It has often been observed by those who have written of mandragora that it was *dangerous*.† Perhaps we may even think that the author who wrote of this *safe* anaesthetic had mandragora in mind as a dangerous one.

Pliny writes about the crocodile:

28. 110: The ashes of the hide of either species mixed with vinegar and applied to parts of the body which are to be cut, or the smell of the burnt hide, removes all sense of the knife.

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\* This argument holds good regarding the original author of this statement, whether Dioscorides or some one earlier. One who writes of safe anaesthetics must have known of dangerous ones; but the fact that some were safe and others dangerous could have been learned only by experiment.

† (Theophr., *Caus. Plant.*, 6. 4. 5); Diosc., 1. 571; Plin., 25. 150.



In the book *De Euporistis*, which has commonly been attributed to Dioscorides,\* we have the most direct testimony regarding the practice of using anaesthetics in surgery. Here, in enumerating several compounds used to induce sleep, the author remarks:

Diosc., 2. 100: We also use soporifics in the case of persons whose suffering is continued, — when one who is about to be cut or cauterized wishes to become insensible to the pain.

The use of the verb in the first person (*we use*) is to be noted.

We are told that a preparation of hemp was used in China in the early part of the Christian era to effect painless surgery. The following passage occurs in a sixteenth-century Chinese work on medicine in the biography of Hoa-tho, an eminent physician of the third century of our era:†

When he determined that it was necessary to employ acupuncture, he applied it in two or three places; and so with the *moxa*, if that was indicated by the nature of the affection to be treated. But if the disease resided in parts upon which the needle, the *moxa*, or liquid medicaments could not operate — for example, in the bones, or the marrow of the bones, in the stomach or the intestines — *he gave the patient a preparation of hemp*. . . . and after a few moments he became as insensible as if he were drunk or dead. Then, as the case required, he performed operations, incisions or amputations, and removed the cause of the malady; then he brought together and secured the tissues, and applied liniments. After a certain number of days the patient recovered, without having experienced during the operation the slightest pain.

Unfortunately we do not know the date at which the above biography was written, — whether it was composed shortly after the death of Hoa-tho, when the truth of the recorded facts could be known accurately, or whether we have here simply a record of a distant tradition. However this is, it is another indication that antiquity was busy seeking relief from the pain of surgical operations.‡

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\* Though his authorship of it is questioned. See Christ, Gr. Litt.<sup>3</sup>, p. 862.

† A copy of this work is preserved at Paris in the Bibliothèque Nationale. The passage quoted is given by Julien in Comptes Rendus des Séances de l'Académie des Sciences, 28 (1849), p. 197.

It was perhaps confusion of this account of the use of hemp with the one given by Herodotus which led to the extravagant statements cited in the footnote, p. 495 f.

‡ No other passages in ancient writers, so far as I have been able to ascertain, refer certainly to the use of anaesthetics. Two additional passages from Pliny may be cited as bearing indirectly on local anaesthesia:

A very strong argument for the truth of the statements about the use of the plant as an anaesthetic is to be drawn from certain experiments made a few years ago by the English physician and medical writer, Dr. Benjamin Ward Richardson.\* Having procured a specimen of mandragora root from Greece, he made a tincture by four weeks' maceration of it, in fine powder, in alcohol diluted with five times its bulk of water, attempting to reproduce as nearly as possible the ancient wine of mandragora (*μανδραγορίτης*). This product he found to exhibit "the most active properties — properties faithfully represented by the ancients in their observations."† I give his conclusions in his own words:‡

The wine of mandragora is a general anaesthetic of the most potent quality. The action no doubt depends on the presence of an alkaloid which is like, if not identical with, atropine, and from it an alkaloid could be extracted which might be used medicinally, and which would, I have no doubt, be one of the most active anaesthetics we have yet discovered. From the circumstance that the heart continues to beat after the respiration has ceased§ we may infer that as a general anaesthetic the alkaloid might, under

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20. 125 (of *eruca*): Aiunt verbera subituris potum ex vino durtiam quandam contra sensum induere.

25. 24: Tradat M. Varro Servium Clodium, equitem Romanum, magnitudine doloris in podagra coactum veneno crura perunxisse, et postea caruisse sensu omni aequae quam dolore in ea parte corporis.

Mention may also be made here of the soporific compound for use in surgery described by Theodoric, a famous surgeon of the 13th century, in his *Cirurgia*, lib. 4, cap. 8. After prescribing the measure of the several ingredients (opium, belladonna, hyoscyamus, mandragora, and others) he says: Haec omnia in unum commisce in vase aeneo ac deinde in istud mitte spongiam . . . et naribus apponatur quousque somnum capiat qui incidendus est, et sic fiat *cirurgia*. Quae peracta, ut excitetur aliam spongiam in aceto infusam frequenter ad nares ponas.

Other references to the use of anaesthetics in mediaeval and early modern times could probably be collected.

\* These experiments are fully described in the *New York Medical Journal*, 47 (1888), p. 684 f., and in Dr. Richardson's publication, the *Asclepiad*, 5 (1888), p. 174 ff.

† Kobert, *Ueber den Zustand der Arzneikunde vor 18 Jahrhunderten*, Halle, 1887, p. 21 f., says that he was persuaded to believe in the ancient statements about the use of mandragora as an anaesthetic by certain experiments with *hyoscin*, and by the information conveyed to him by the Japanese pharmacologist Takahashi that a solanaceous plant is successfully used in surgery in Japan to-day.

‡ *Asclepiad*, 5 (1888), p. 183.

§ The experiments were mostly upon small animals, — pigeons, rabbits, and the like; Dr. Richardson also experimented upon human subjects "in doses not sufficient to produce actual narcotism."

necessity, be once more employed, as in the olden time, to deaden the pain of a surgical operation, and that, too, with comparatively little risk to life.

The arguments presented are certainly sufficient to warrant the belief that mandragora was used as an anaesthetic in antiquity. In order to arrive at some idea of *how common* the use of anaesthetics was, I have examined a considerable number of passages (about a hundred and fifty in all) in Greek and Roman literature which bear on surgery, — most of them incidentally. The majority of these are so general that no information can be obtained from them; some of them show plainly that the author knew nothing about anaesthesia, and none of them give evidence that the use of anaesthetics was *common* in ancient surgery. The most important of these passages I submit here :

Hipp., 1. 60: When the operation consists of a single incision it should be made quickly; for, owing to the fact that the patients suffer pain, the time of the operation ought to be as short as possible.

The words which follow these in the text show still further that the author had no thought of anaesthesia when he wrote the passage.

Xenoph., Mem., 1. 2. 54: They allow physicians to cut and cauterize them with sufferings and pains.

Plato, Pol., 293 A: The physicians . . . if . . . they heal us, cutting or cauterizing or inflicting some other painful thing upon us.

Id., Gorg., 479 A: Like a child fearing cutting and cauterizing because it is painful.

Id., Ibid., 480 C: Not to flinch, but to close the eyes and submit manfully, just as one allows a physician to cut and cauterize one, aiming at the good result, not reckoning the pain.

Aristotle, Probl., A. 35: Is the incision easier and freer from pain because iron takes a keener edge?

Cic., Tusc. Disp., 5. 73: Shall Epicurus be allowed to say that the wise man finds no time, even though he be burned, or wrenched, or cut, when he cannot exclaim, "How I despise (these pains)!"?

Plin., 29. 13: It is said that he (Archagathus, the first Greek physician at Rome) was a skilful surgeon, and that his coming was wonderfully acceptable at first, but that a little later they changed his name to *the Executioner*, from his cruelty in cutting and cauterizing.

Cic., Tusc. Disp., 2. 35: When Gaius Marius had his varicose veins cut he suffered pain.

Id., Ibid., 2. 53: Gaius Marius, a man of rustic breeding, but undoubtedly a *man*, when he was about to have his veins cut, as I have said above, at the outset refused to be bound, yet no one before Marius is said to have been cut without binding. . . . And . . . Marius gave evidence, too, that the bite of the pain was keen.

Propert., Eleg., 1. 1. 27: Bravely will we endure both the knife and the cruel cauteries.

Ovid, Rem. Amor., 229: To restore the body, you will endure the knife and the cauteries.

Id., Heroid., 20. 183: Others, that they may be well, endure the knife and the cauteries.

Seneca, Ad Marciam, 22. 3: Add . . . the torments of the physicians, who remove bones from living bodies, putting their whole hands into the bowels, and treating the organs with divers pains.

Plut., Moral., 74 D: We must imitate the physicians; for when they perform a surgical operation they do not leave the wounded member in suffering and pain, but soothe it gently and foment it.

Martial, Epig., 11. 84. 5 f.: More gently does Alcon cut a strangulated hernia, and hew broken bones with his rude hand.\*

Dio Chrysost., Orat. 14: If ever the physician sees fit to bind the patient, he is straightway bound; and if he sees fit to cut or cauterize him, the knife and cauteries are applied. . . . Often the very servants of the sick man bind their master, and bring the fire to cauterize him, and furnish other assistance.

Aristides, Orat. 24: Finally, the physicians began at my chest and carved (*κατέτεμνον*) me all the way down to my bladder. And when the cupping-glasses took hold, my breath left me completely, and a pain numbing and very hard to bear went through me, and everything was wet with blood, and I was filled with anguish.

Tertull., Scorpiac., cap. 5: Being cut and cauterized . . . is not an evil, for the reason that it brings useful pains. . . . The patient who howls and groans and bellows in the hands of his physician will presently load those same hands with pay, and call them the best of operators, and no longer say that they are cruel.

Themist., Orat. 22: Just as physicians often leave the knife alone, and by applying certain drugs heal the malady without pain.

From the last clause it follows that cure with the knife *would* be attended by pain.

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\* That is, Alcon, bungler that he is, performs a surgical operation with less pain to the patient than that caused his customers by the barber Antiochus.

None of the passages which I have quoted implies in any way that the writer was familiar with the use of anaesthetics. I have found two passages upon which some argument for a knowledge of their use on the part of the writer might be founded:

Plut., Moral., 102 D: "May we not be ill at all," says the Academician Crantor, "but if so, let us have our senses, even if one of our members be cut or taken away. For that state of insensibility does not come to one without great cost, since in that case one is likely to become brutish not only in body, but also in mind."

At first sight it seems that "that state of insensibility" may be the anaesthesia which we are looking for; but when the passage is examined in relation to the context, the word seems rather to refer to *apathy* or *indifference* to pain (*ἀπάθειαν*, further up in the passage of which I have quoted the latter part) than to anaesthesia produced by drugs.

The other passage is from Lucian:

Apol., 2: Now is the time for me to be quiet and to endure cutting and cauterizing, if need be, for my welfare; and for you to sprinkle on the drugs, holding in readiness the knife and the flaming cautery.

Here it is *possible* that we have a reference to local anaesthesia. If the drugs were to be applied *after* the cutting and burning, it would be clear that we had to do with something applied to the lacerated parts to aid the healing process, a custom which appears to have been very old.\* But it is to be noted that Lucian instructs his friend *first* to sprinkle on the drugs, and *then* to hold the knife and cautery in readiness.

After carefully weighing all the evidence, I think that we may safely conclude (1) that the use of mandragora as an anaesthetic before surgical operations was known to, and to some extent employed by physicians at least as early as the first century of the Christian era; (2) that mandragora was the principal, and almost the only anaesthetic of antiquity; (3) that the use of anaesthetics never became very general either in ancient or mediaeval times, this being doubtless due to the danger attendant upon their use. It was this danger which led the medical writers to urge caution in the use of all *anodynes*.†

WORCESTER, MASSACHUSETTS.

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\* Compare Hom., Il., 11. 830, 844 ff.; and Plut., Moral., 74 D, quoted above.

† See Celsus, 5. 25. 1; Galen, 10. 816.

## APPENDIX.

Text of Greek and Latin passages translated above.

(P. 489.) Theophr., 9. 8. 8: περιγράφειν δὲ καὶ τὸν μανδραγόραν εἰς τρεῖς ξίφει, τέμνειν δὲ πρὸς ἐσπέραν βλέποντα· τὸν δ' ἕτερον κύκλῳ περιορχεῖσθαι καὶ λέγειν ὡς πλεῖστα περὶ ἀφροδισίων.

(P. 490.) Plin., 25. 148: Effosuri cavent contrarium ventum et tribus circulis ante gladio circumscribunt, postea fodiunt ad occasum spectantes.

(P. 493.) Schmidel, § 53: Die Veneris ante Solis exortum auribus gossypio oppletis, ceraque aut pice oclusis exire iubent, crucis figuram terno tripodis circumductu plantae inscribere, tum circumfodere totam, sic ut terrae non nisi extrema fibra obhaereat; ita sollicitatam caudae canis alligere funiculo, statimque aufugere, frusto panis cani obverso; id illum appetentem nitendo radicem evellere, moxque audito eius eiaculatu concidere mortuum.

(P. 495.) Schmidel, § 53: Ex urina quam homo innocenter ad suspensum furti crimine damnatus inter extrema vitae effuderit, herbam nasci aiunt sub patibulo, foliis latis, flore croceo, radice hominem examussim simulante, pilis quoque et ipsis sexuum notis apparentibus. Nonnulli adiciunt, vitalem fuisse subterraneum hunc foetum. . . . Nostri Alrunam vocant. Eam eruere rem esse plenissimam periculi: ab eruta enim radice gemitum edi tam terribilem, ut audienti fossori moriendum sit e vestigio.

(P. 496.) Apollon. Rhod., Argon., 3. 851 ff.:

851. πρωτοφυνὲς τόγ' ἀνίσχες, καταστάξαντος ἔραξε  
αἰετοῦ ὠμηστέῳ κημοῖς ἐνὶ Κανκασίοισιν  
αἱματόεντ' ἰχῶρα Προμηθῆος μογεροῖο.  
τοῦ δ' ἦτοι ἄνθος μὲν ὅσον πήχυνον ὑπερβεν  
χροιῇ Κωρυκίῳ ἔκελον κρόκῳ ἐξεφαάνθη,  
καυλοῖσιν διδύμοισιν ἐπήγορον· ἥ δ' ἐνὶ γαίῃ  
σαρκὶ νεοσμήτῳ ἐναλιγκίῃ ἔπλετο ῥίζα.

864. μυκηθμῷ δ' ὑπένερθεν ἐρεμνὴ σείετο γαῖα  
ρίζης τεμνομένης Τιτηνίδος· ἔστνε δ' αὐτὸς  
Ἰαπετοῖο πάυς ὁδύνη περὶ θυμὸν ἀλύνων.

(P. 497.) Pseudo-Orpheus, Lith., 363 ff.:

363. ἀενάῳ δ' ἐνὶ πέτρῳ ἐχέφρονα πίδακι λούων,  
φάρεσιν ἐν μαλακοῖσιν, ἄτε βρέφος, ἀλδήσασκε.

368. χέρσιν εἰς ἀτίταλλε, θεοῦδέα πέτρον αἰέρας,  
μητέρι νήπιον υἱὸν ἐοικὼς ἀγκὰς ἐχούσῃ.  
καὶ σὺ δ', ἐπὶν ἐθέλῃς ὅπα δαιμονίην ἐπακοῦσαι,  
ὦδ' ἔρδew, ἵνα θαῦμα μετὰ φρεσὶ σῇ· ἰ δαείης·  
ὁππότε γάρ μιν πάγχυ· κάμῃς ἐνὶ χεῖρεσι πάλλων,  
ἐξαπίνης ὄρσει νοσσιλοῦ παιδὸς αὐτῆν,  
μαίῃς ἐν κόλπῳ κεκληγόντος ἀμφὶ γάλακτι.  
χρὴ δέ σε τετληῶτι νόφ' ἀκταινέμεν αἰεῖ,
378. . . . τόλμα δὲ θεοπροπίην ἐρεείνειν·  
πάντα γὰρ ἐξερέει νημερτέα.

(P. 501.) Aretaeus, De Caus. et Sign. Diut. Morb., 1. 6. init : ἐκμαίνει δὲ καὶ τῶν ἐδεστών μετεξέτερα, ἢ μανδραγόρη, ἢ ὑοσκύαμος, ἀλλ' οὔτι πω μανὴν τάδε κικλήσκειται.

(P. 501.) Theophr., 9. 9. 1: τὴν δὲ ρίζαν χρήσιμον (sc. εἶναι φασι) . . . πρὸς φίλτρα.

(P. 501.) Diosc., 1. 570: οἱ δὲ Κικαίαν καλοῦσιν, ἐπειδὴ δοκεῖ ἡ ρίζα φίλτρων εἶναι ποιητική.

(P. 502.) Julian, Epist. 23: εἴτα μετὰ τοῦ φιλάνδρου τὸ φιλόθεον τίς ἐν γυναικὶ δεύτερον τίθησι, καὶ οὐ φανέται πολλὸν πᾶν τὸν μανδραγόραν ἐκπεπωκώς;

(P. 502.) Physiologus, cap. 4: ἡ θήλυς δὲ ζητεῖ βοτάνην τὴν λεγομένην μανδραγόραν καὶ μεταλαμβάνει ἐξ αὐτῆς καὶ εὐθέως πυροῦται καὶ πορεύεται πρὸς τὸν ἄρρην καὶ παραπεξέουσα κομίζει αὐτῷ τὴν βοτάνην καὶ μεταλαμβάνει ὁ ἄρρην ἐξ αὐτῆς καὶ εὐθέως πυροῦται καὶ συγγίγνεται τῇ θήλει.

(P. 503.) Cantic. 7. 10-13: ἐγὼ τῷ ἀδελφιδῷ μου, καὶ ἐπ' ἐμὲ ἡ ἐπιστροφή αὐτοῦ. ἔλθε ἀδελφιδέ μου, ἐξέλθωμεν εἰς ἀγρόν, αὐλισθώμεν ἐν κώμας· ὀρθρίσωμεν εἰς ἀμπελῶνας, ἴδωμεν εἰ ἦνθησεν ἡ ἄμπελος, ἦνθησεν ὁ κυπρισμός, ἦνθησαν αἱ ῥοαί· ἐκεῖ δώσω τοὺς μαστούς μου σοί. οἱ μανδραγόροι ἔδωκαν ὁσμήν, καὶ ἐπὶ θύραις ἡμῶν πάντα ἁρόδρνα νέα πρὸς παλαιά, ἀδελφιδέ μου, ἐτήρησά σοι.

(P. 503.) Genesis, 30. 14-16: ἐπορεύθη δὲ Ῥουβὴν ἐν ἡμέρᾳ θερισμοῦ πυρῶν καὶ εὔρε μῆλα μανδραγορῶν ἐν τῷ ἀγρῷ, καὶ ἤνεγκεν αὐτὰ πρὸς Λείαν τὴν μητέρα αὐτοῦ· εἶπε δὲ Ῥαχὴλ τῇ Λεῖᾳ τῇ ἀδελφῇ αὐτῆς Δός μοι τῶν μανδραγορῶν τοῦ υἱοῦ σου. εἶπε δὲ Λεῖα Οὐχ ἱκανόν σοι ὅτι ἔλαβες τὸν ἄνδρα μου; μὴ καὶ τοὺς μανδραγοράς τοῦ υἱοῦ μου λήψῃ; εἶπε δὲ Ῥαχὴλ Οὐχ οὕτως· κοιμηθήτω μετὰ σοῦ τὴν νύκτα ταύτην ἀντὶ τῶν μανδραγορῶν τοῦ υἱοῦ σου. εἰσῆλθε δὲ Ἰακώβ ἐξ ἀγροῦ ἐσπέρας, καὶ ἐξῆλθε Λεῖα εἰς συνάντησιν αὐτῷ καὶ εἶπε Πρὸς ἐμὲ εἰσελεύσῃ σήμερον· μεμίσθωμαι γάρ σε ἀντὶ τῶν μανδραγορῶν τοῦ υἱοῦ μου.

(P. 509.) Xenoph., Symp., 2. 24: ὁ οἶνος ἄρδων τὰς ψυχὰς τὰς μὲν λύπας ὥσπερ ὁ μανδραγόρας τοὺς ἀνθρώπους κοιμίζει.

(P. 509.) Plato, Rep., 488 C: τὸν δὲ γενναῖον ναύκληρον μανδραγόρᾳ ἢ μέθῃ ἢ τινι ἄλλῳ συμποδίσαντας.

(P. 509.) Demosth., Philip. 4. 6: ἡμεῖς δ' οὐ μόνον τούτοις ὑπολειπόμεθ', ὡς ἄνδρες Ἀθηναῖοι, ἀλλ' οὐδ' ἀνεγερθῆναι δυνάμεθα, ἀλλὰ μανδραγόραν πεπωκόσιν . . . εἰκόταμεν ἀνθρώποις.

(P. 509.) Aristotle, De Somn., 3 (ed. Acad. Bor., vol. 1, p. 456 b 30):  
 . . . τὰ ὑπνωτικά· πάντα γὰρ καρῃβαρίαν ποιεῖ, καὶ τὰ ποτὰ καὶ τὰ βρωτά, μήκων,  
 μανδραγόρας, οἶνος, αἶραι.

(P. 509.) Philo Iud., De Vita Contempl., 5 (ed. Richt., vol. 5, p. 313):  
 "Ἐτεροι δὲ τῶν μετριοτέρων δοκούντων εἶναι συμποτῶν, ὥσπερ μανδραγόραν τὸν ἄκρα-  
 τὸν πίνοντες ὑποβεβλήκασι καὶ . . . ὑπνῷ βαθεῖ πιέζονται.

(P. 509.) Frontin., Stratag., 2. 5. 12: Maharbal missus a Carthaginiensibus adversus Afros rebellantes, cum sciret gentem avidam esse vini, magnum eius modum mandragora permiscuit, cuius inter venenum et soporem media vis est. Tum, proelio levi commisso, ex industria cessit. Nocte deinde intempesta, relictis intra castra quibusdam sarcinis et omni vino infecto, fugam simulavit; cumque barbari, occupatis castris, in gaudium effusi avide medicatum merum hausissent, et in modum defunctorum strati iacerent, reversus, aut cepit eos aut trucidavit.

(P. 510.) Polyæn., Stratag., 8. 23. 1: Ἐπικράτης ἐντολὴν ἔχων παρὰ Καίσαρος μετὰ τῶν χρημάτων παρασκευὴν εὐωχίας μεγάλης κομίζει καὶ ὑδρίαν πλήρη ξιφῶν καὶ οἶνον μανδραγόρα κεκρασμένον. . . . οἱ δὲ ὑπερχαίροντες τῷ πλήθει τῶν χρημάτων ὥρμησαν ἀνέδην εὐωχεῖσθαι καὶ τὸν οἶνον πεφαρμακωμένον πίνοντες ἀπεκοιμήθησαν. Καίσαρ καθέδοντας ἀναιρεθῆναι κελεύσας, κτλ.

(P. 510.) Plut., Moral., 15 F: . . . ὁ μανδραγόρας ταῖς ἀμπέλους παραφύομενος καὶ διαδιδούς τὴν δύναμιν εἰς τὸν οἶνον μαλακωτέραν ποιεῖ τὴν καταφορὰν τοῖς πίνουσιν.

(P. 510.) Lucian, Timon, 2: . . . καθάπερ ὑπὸ μανδραγόρα καθεύδεις, ὃς οὔτε τῶν ἐπιπορούτων ἀκούεις οὔτε τοὺς ἀδικούντας ἐπισκοπεῖς.

(P. 510.) Id., Ver. Hist., 2. 33: κύκλω μὲν περὶ πᾶσαν αὐτὴν ὕλη ἀνέστηκε, τὰ δένδρα δ' ἐστὶ μήκωνες ὑψηλαὶ καὶ μανδραγόραι.

(P. 511.) Apul., Metamorph., 10. 11: Dedi venenum, sed somniferum, mandragoram, illud gravedinis compertae famosum et morti simillimi soporis efficax.

(P. 511.) Macrob., Saturn., 7. 6. 7: Insomnem medici frigidis oblinunt, modo papaveris suco, modo mandragora vel similibus.

(P. 511.) Cyrill., ad Gen. 30. 14: (sc. μανδραγόρας ἐστὶ) ὑπνῆλὸν χυμῆμα, καὶ βαθεῖ καταμεθύσκον κύρω τοὺς μετεσχηκότας.

(P. 511.) Theodoret., ad Cantic. 7. 13: ὕπνον οἶδεν ἐμποιεῖν ὁ μανδραγόρας, ὡς ἱατρῶν παῖδες φασιν . . . οἱ μανδραγόραν πεπωκότες οὐκ αἰσθάνονται τῶν τοῦ σώματος κινήματων.

(P. 511.) Basil., Hom., 5: διὰ γὰρ τοῦ μανδραγόρου ὕπνον ἱατροὶ κατεπάγουσιν.

(P. 511.) Hesychius, s. v. μανδραγόρας: εἶδος βοτάνης, οἰνωτικὸν καὶ ὑπνωτικόν.

(P. 511.) Id., s. v. ὑπνωτικόν: ὁ μανδραγόρας.

(P. 512.) Photius, s. v. μανδραγόρας: ὑπνωτικὸς καρπός.

(P. 512.) Suidas, s. v. μανδραγόρας: ὑπνωτικὸς καρπός, ἢ λήθης ποιητικός.  
 "καὶ φανείται πολλὸν τὸν μανδραγόραν ἐκπεπωκώς."

(P. 512.) Schol. ad Plat. Rep. 488 C: ὑπνωτικὸς ὁ καρπὸς τοῦδε τοῦ φυτοῦ.



(P. 512.) Ioan. Sicel., ad Ideas Hermog. (Walz, Rhet. Graec., vol. 6, p. 253): ἔστι δὲ ἡ μανδραγόρα βοτάνη καρωτική καὶ ἀναιρετική.

(P. 514.) Diosc., 1. 571: ἔνιοι δὲ καθέψουσιν οἶνω τὰς ρίζας ἄχρι τρίτου καὶ διυλίσαντες ἀποτίθενται, χρώμενοι ἐπὶ τῶν ἀγρύπνων καὶ περιοδυνόντων κυαθῶ ἐνί, καὶ ἐφ' ὧν βούλονται ἀναισθησίαν τεμνομένων ἢ καιομένων ποιῆσαι.

(P. 514.) Id., 1. 572 f.: σκενάζεται δὲ καὶ δίχα ἐψήσεως οἶνος ἐκ τοῦ φλοιοῦ τῆς ρίζης· δεῖ δὲ ἐμβάλλειν μνᾶς γ' εἰς μετρητὴν οἶνου γλυκέος, διδόναι τε ἐξ αὐτοῦ κυάθους γ' τοῖς μέλλουσι τέμνεσθαι ἢ καίεσθαι, ὥς προεῖρηται· οὐ γὰρ ἀντιλαμβάνονται τοῦ ἀλγῆματος διὰ τὸ καταφέρεσθαι.

(P. 514.) Id., 1. 574: ἥν φασι πινομένην . . . ἡ . . . ἐσθιομένην ἀποκαροῦν· καθεύδει γὰρ ὁ ἄνθρωπος ἐν ᾧ περ ἂν φάγοι στήματι, αἰσθανόμενος οὐδενὸς ἐπὶ ὥρας γ' ἢ δ' ἀφ' οὗ περ ἂν προσενέγκηται· χρώνται δὲ καὶ ταύτῃ οἱ ἱατροί, ὅταν τέμνῃν ἢ καίῃν μέλλωσι.

(P. 514.) Plin., 25. 150: Vis somnifica pro viribus bibentium; media potio cyathi unius. Bibitur . . . ante sectiones punctionesque ne sentiantur; ob haec satis est aliquis somnum odore quasisse.

(P. 515.) Pseudo-Apul., De Virib. Herb., cap. 131: Si aliqui aliquod membrum fuerit emutilandum, comburendum, vel serrandum, bibat cum vino unciam mediam, et tantum dormiet quousque abscindatur membrum aliquo sine dolore et sensu.

(P. 515.) Isidor., Orig., 17. 9: Cuius cortex vino mixtus ad bibendum iis datur quorum corpus propter curam secandum est, ut soporati dolorem non sentiant.

(P. 515.) Dynamidia (ap. Ang. Mai, Class. Auct., vol. 7, p. 457): Corticis radicum eius libras III. vino mixtas in amphoram mittito et reponito ut maturescat: exinde dato potui [cyathos]\* IIII. cui aliquid secandum est; mox ut biberit, soporem † facit et incisionem non sentit.

(P. 515.) Serapion, Tract. Prim. (ed. Venet., 1479, fol. 98): Qui fuerit necessarius incidere aut cauterizare aliquod membrum et volumus quod dolor non sentiatur, detur in potu ex eo plus.

(P. 515.) Id., Ibid.: Datur in potu ex eo quantitas quattuor obolorum ‡ ei quem necesse est cauterizare aut incidere, et non sentiet cauterizationes sive incisionem propter subât quod accidit.

(P. 515.) Id., Ibid.: Medici cyrurgiae dant eam quando volunt incidere seu coquere aliquod membrum.

(P. 515.) Avicenna, Can. Med., lib. 2, cap. 366: Qui autem vult ut aliquid ex membris suis secetur, bibat tres obolos § ex ea in vino, et faciet subât.

(P. 515.) Brun. Astens., Expos. Super Cantic., 7. 13: Fertur eos qui ob

\* *Cyathos* addidi; deest in libro impresso.

† *Soporem*, Mai.

‡ *Obolorum*, Prof. G. F. Moore, ex corrupto *onolos*, quod in libro impresso legitur.

§ *Obolos*, Id., ex corrupto *anulusat*.

curam secandi sunt, si exteriorem huius pomi corticem biberint, non sentire sectionem vel adustionem.

(P. 516.) Bart. Angl., De Propr. Rerum, lib. 17, cap. 104: Cuius cortex vino mixtus porrigitur ad bibendum his quorum corpus est secandum, ut dolorem non sentiant soporati.

(P. 516.) Pier. Valer., Hieroglyph., lib. 58: De soporifera mandragorae vi medici multa tradidere, idque praecipue, quod plurimus et efficacissimus est eius usus in soporandis iis qui vel inurendi vel secandi sunt: altissimum enim per quatuor ferme horas somnum, potione ita medicata exhausta, perseverare, ut neque ignem neque ferrum sentiant.

(P. 516.) Giov. Batt. della Porta, Mag. Natur., lib. 8, cap. 1: Dioscorides eos homines protinus dormituros eo habitu dicit, quo mandragoram hauerunt, ereptis omnibus sensibus in ternas quaternasque a quo potionati sunt horas, et hac uti medicos quum urere aut secare quem volunt.

(P. 518.) Diosc., 1. 571: (The first passage from Dioscorides quoted on p. 534.)

(P. 518.) Serap., loc. cit.: Sunt quidam coquentes radicem mandragorae cum vino donec minuatur tertia pars eius, et colant ac reponunt et accipiunt ex eo quantitatem unius oboli \* et administrant ad superfluas vigilias et ad sedandum dolores. (The rest of the text given above in the first passage from Serapion quoted on p. 534.)

(P. 519.) Avicenna, loc. cit.: Facit subât et facit somnum. . . . Administratur ex eo ad hoc ut faciat subât plus, et ad hoc ut dormire faciat minus.

(P. 523.) Diosc., 1. 713: οὐχ ὅτι πολλή τις ἐστὶν ἡ ἀναγκαία ἢ χρήσις αὐτῶν, ἀλλ' ἵνα κατὰ μὲν αὐτῶν ἐλλείπειν δοκῶμεν.

(P. 525.) Diosc., 1. 817: Δίθος μεμφίτης εὐρίσκεται ἐν Αἰγύπτῳ κατὰ Μέμφιν, ἔχων ψηφίδων μέγεθος, λιπαρὸς καὶ ποικίλος· οὗτος ἰστορεῖται καταχρισθεὶς λείος ἐπὶ τῶν μελλόντων τέμνεσθαι ἢ καίεσθαι τόπων, ἀναισθησίαν ἀκίνδυνον ἐπιφέρειν.

(P. 525.) Plin., 36. 56: Vocatur et memphites a loco, gemmantis naturae; huius usus conteri et iis quae urenda sint aut secanda ex aceto inlini; obstupescit ita corpus nec sentit cruciatum.

(P. 525.) Plin., 28. 110: Corii utriusque cinis ex aceto inlitus iis partibus quas secari opus sit, aut nidor cremati, sensum omnem scalpelli aufert.

(P. 526.) Diosc., 2. 100: χρώμεθα δὲ τοῖς ὑπνωτικοῖς καὶ ἐφ' ὧν ἐστὶ χρόνια τὰ πάθη, ὅτε τεμνόμενός τις ἢ καίμενος ἀναντίληπτος ἐβλήσκει τῶν ἀλγηδόνων γίγνεσθαι.

(P. 528.) Hipp., 1. 60: ἐν οἷς μὲν γάρ ἐστι διὰ μιῆς τομῆς ἢ χειρουργία, χρὴ ποιεῖσθαι ταχεῖαν τὴν διαίρεσιν. ἐπεὶ γὰρ συμβαίνει τοὺς τεμνόμενους πονεῖν μὲν τὸ λυπεῖν, ὥς ἐλάχιστον χρόνον δεῖ παρῆναι.

(P. 528.) Xenoph., Mem., 1. 2. 54: τοῖς ἰατροῖς παρέχουσι μετὰ πόνων τε καὶ ἀλγηδόνων καὶ ἀποτέμνειν καὶ ἀποκαίειν.

(P. 528.) Plato, Pol., 293 A: τοὺς ἰατροὺς . . . ἐὰν . . . ἡμᾶς ἰῶνται, τέμνοντες ἢ κόνοντες ἢ τινα ἄλλην ἀλγηδὸνα προσάπτοντες.

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\* Oboli, Prof. G. F. Moore, ex corrupto conos.

(P. 528.) Id., Gorg., 479 A : φοβούμενος ὥσπερανεὶ παῖς τὸ κάεσθαι καὶ τὸ τέμνεσθαι, ὅτι ἀλγεινόν.

(P. 528.) Id., Ibid., 480 C : μὴ ἀποδειλιᾶν, ἀλλὰ παρέχειν μύσαντα καὶ ἀνδρείως, ὥσπερ τέμνειν καὶ κάειν ἱατρῷ, τὸ ἀγαθὸν καὶ καλὸν διώκοντα, μὴ ὑπολογιζόμενον τὸ ἀλγεινόν.

(P. 528.) Aristotle, Probl., A. 35 (ed. Acad. Bor., vol. 2, p. 863 a 27) : εἴπερ ἀκμὴν μᾶλλον ὁ σίδηρος λαμβάνει, ῥάων καὶ ἀπαθεστέρα ἢ διαίρεσις ;

(P. 528.) Cic., Tusc. Disp., 5. 73 : An Epicuro . . . dicere licebit . . . nullum sapienti esse tempus, etiamsi uratur, torqueatur, secetur, quin posset exclamare : “ Quam pro nihilo puto ! ” ?

(P. 528.) Plin., 29. 13 : Vulnerarium eum fuisse tradunt, mireque gratum adventum eius initio, mox a saevitia secandi urendique transisse nomen in carnificem.

(P. 528.) Cic., Tusc. Disp., 2. 35 : Cum varices secabantur C. Mario, dolebat.

(P. 529.) Id., Ibid., 2. 53 : At vero C. Marius, rusticanus vir, sed plane vir, cum secaretur, ut supra dixi, principio vetuit se alligari, nec quisquam ante Marium solutus dicitur esse sectus. . . . Et . . . fuisse acrem morsum doloris idem Marius ostendit.

(P. 529.) Propert., Eleg., 1. 1. 27 :

Fortiter et ferrum saevos patiemur et ignes.

(P. 529.) Ovid, Rem. Amor., 229 :

Ut corpus redimas ferrum patieris et ignes.

(P. 529.) Id., Heroid., 20. 183 :

Ut valeant aliae, ferrum patiuntur et ignes.

(P. 529.) Seneca, Ad Marciam, 22. 3 : Adice . . . lacerationes medicorum ossa vivis legentium et totas in viscera manus demittentium, et non per simplicem dolorem pudenda curantium.

(P. 529.) Plut., Moral., 74 D : δεῖ μμεῖσθαι τοὺς ἱατρούς· οὗτε γὰρ ἐκείνοι τέμνοντες ἐν τῷ πονεῖν καὶ ἀλγεῖν καταλείπουσι τὸ πεπονθός, ἀλλ' ἐνέβρεξαν προσηγώς καὶ κατηγόνησαν, κτλ.

(P. 529.) Martial, Epig., 11. 84. 5 f. :

Mitior implicitas Alcon secat enterocelas

Fractaque fabрили dedolat ossa manu.

(P. 529.) Dio Chrysost., Orat. 14 (ed. Reisk., vol. 1, p. 438) : καὶ δόξη ποτὲ τῷ ἱατρῷ τὸν κάμνοντα δῆσαι, παραχρῆμα ἐδέσθαι, καὶ τέμνειν ἢ καῦσαι, καθήσεται καὶ τμηθήσεται . . . πολλάκις οἱ τοῦ νοσοῦντος οἰκέται αὐτοὶ καταδοῦσι τὸν δεσπότην, καὶ τὸ πῦρ κομίζουσιν, ὅπως καθήσεται, καὶ τᾶλλα ὑπηρετοῦσι.

(P. 529.) Aristides, Orat. 24 (ed. Dind., vol. 1, p. 482) : καὶ τέλος οἱ ἱατροὶ κατέτεμνον ἐκ τοῦ στήθους ἀρξάμενοι πάντα ἐξῆς ἄχρι πρὸς τὴν κύστιν κάτω· καὶ ὥς ἀνθήψαντο αἱ σικαῖαι, παντάπασιν τὸ πνεῦμα ἀπελήφθη καὶ διήλθεν ὁδὴν ναρκώδης καὶ ἄπορος φέρειν καὶ πάντα αἵματι ἐπέφυρτο καὶ γίνομαι ὑπεραλγεῖνος.

(P. 529.) Tertull., Scorpiae., cap. 5 : Non tamen secari et inuri . . . idcirco malum, quia dolores utiles affert. . . . Ululans denique ille et

gemens et mugiens inter manus medici, postmodum easdem mercede cumulabit, et artifices optimas praedicabit, et saevas iam negabit.

(P. 529.) Themist., Orat. 22 (ed. Dind., p. 335) : ὥσπερ οἱ ἰατροὶ τὸ μὲν σιδήριον πολλάκις ἐώσι, προστιθέμενοι δὲ φάρμακα ἅττα οὐ ξὺν ἀλγηδόνι τὸ πάθος ἰώνται.

(P. 530.) Plut., Moral., 102 D : “ μὴ γὰρ νοσοῖμεν ” φησὶν ὁ ἀκαδημαῖκος Κράντωρ, “ νοσήσασι δὲ παρείη τις αἴσθησις, εἴτ’ οὖν τέμνοιτό τι τῶν ἡμετέρων εἴτ’ ἀποσπῶτο. τὸ γὰρ ἀνώδυνον τοῦτ’ οὐκ ἄνευ μεγάλων ἐγγίγνεται μισθῶν τῷ ἀνθρώπῳ · τεθριώσθαι γὰρ εἰκὸς ἐκεῖ μὲν σῶμα τοιοῦτον ἐνταῦθα δὲ ψυχὴν.”

(P. 530.) Lucian, Apol., 2 : ὦρα . . . ἐμὲ μὲν σιωπᾶν καὶ ἀνέχεσθαι τεμνόμενον καὶ καύμενον, εἰ δέοι, ἐπὶ σωτηρίᾳ, σὲ δὲ ἐπιπάττειν τῶν φαρμάκων καὶ τὴν σμίλην ἅμα πρόχειρον ἔχοντα καὶ τὸ καντήριον διάπυρον.